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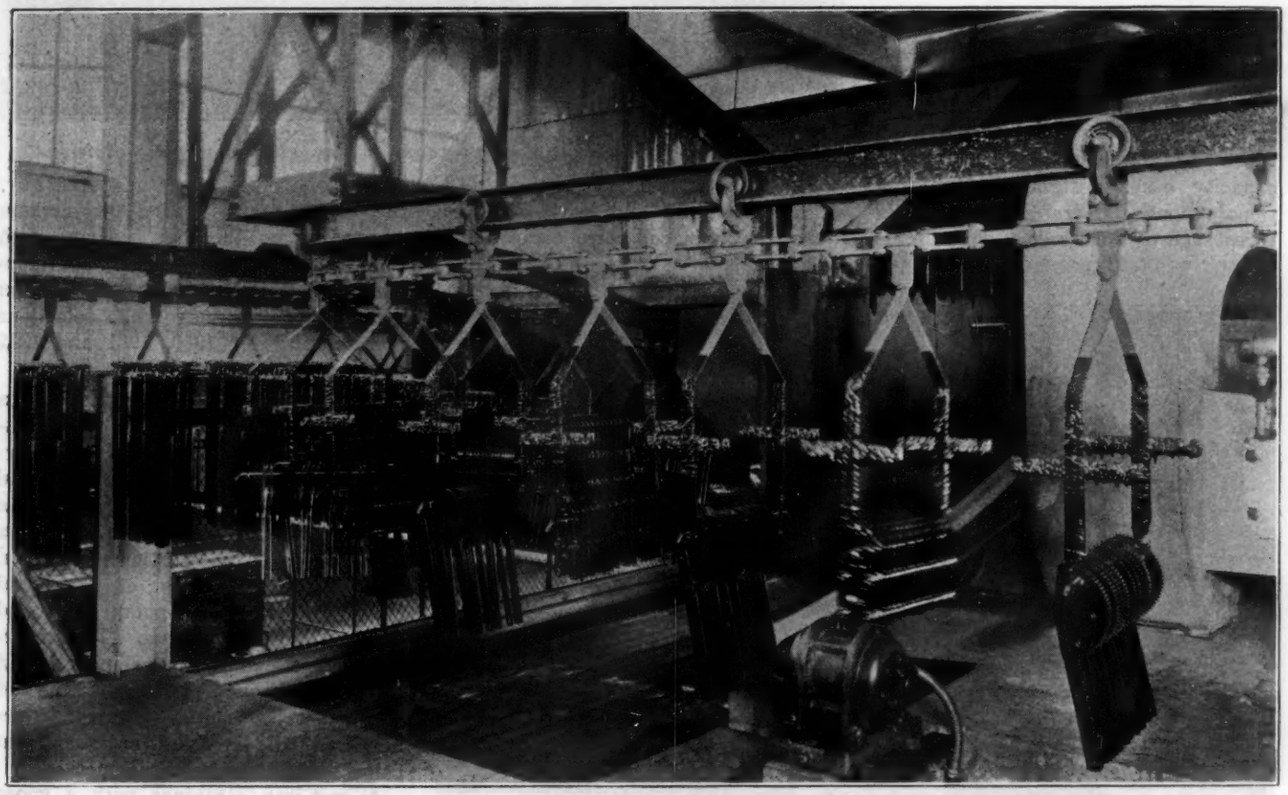
Art Is Factor in Manufacture of Automobile Hardware

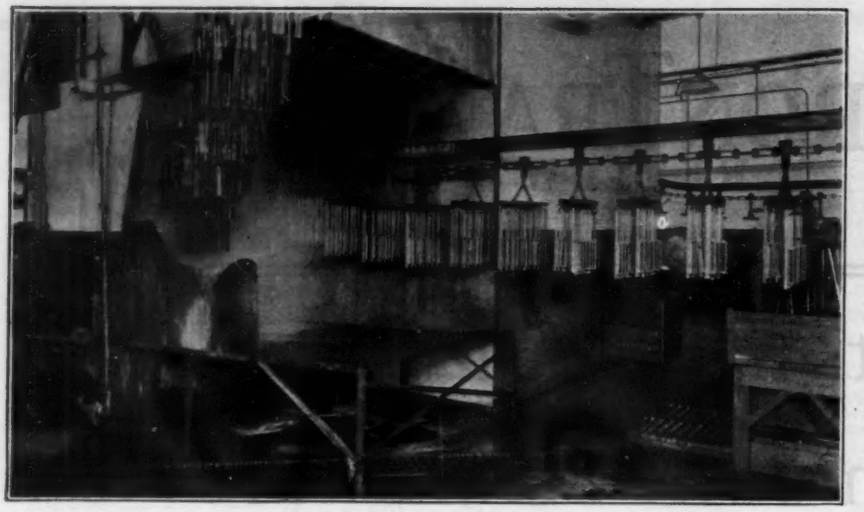
To Meet Demand for Artistic Products, Toledo Company Employs Staff of Designing Artists To Co-operate with Engineering Department

By J. B. Nealey

IN THE repetitive cycle of the rise and fall of great civilizations, as recorded by history, there always is a point in the upper part of the curve where the arts assume a prominent position. Whether American civilization has reached its zenith, as some assert, has no place in this article, but the fact that it is moving rapidly into the esthetic period has. Formerly a thing apart, the artistic influence recently has invaded industry and mass production, as evidenced by the competition in pleasing lines in the modern automobile, by the recently evolved color schemes in kitchen and bathroom, and by many other examples. This trend, speeded by popular de-



Loaded conveyor leaving the japanning ovens and approaching the assembly lines



Loaded conveyor entering the steam bath section of the washing equipment

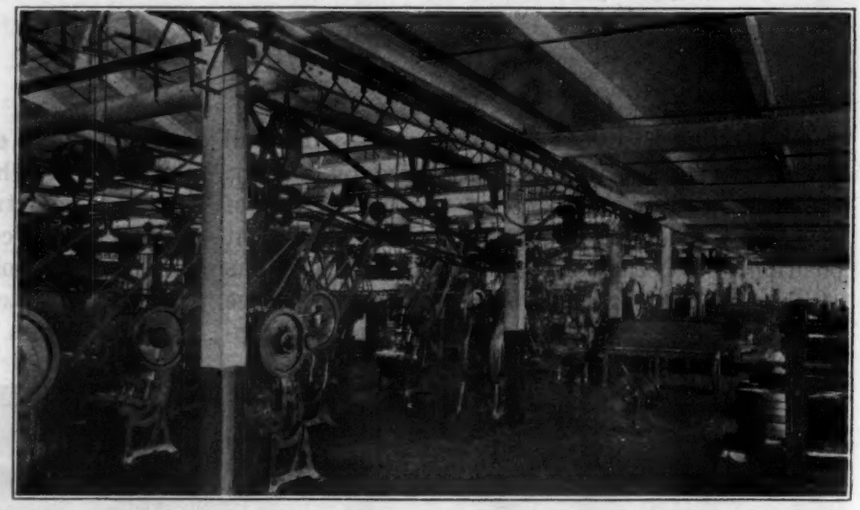
mand, has progressed to the point where at least one manufacturer has opened up a complete art department in connection with its factory. This company produces automobile hardware, interior and exterior fittings, light channel shapes, window regulators, seat adjusting mechanisms, and similar articles, and practically every make of car carries some of its products. This manufacturer is the Dura Co., Toledo, O., which, in addition to its regular lines, is equipped to make, assemble and finish with lacquer, enamel or plate any small assembly.

Competent Designing Sought

Early recognizing the difference between modernistic riot and the beautiful creations of the trained designer, this company employed a large staff of designing artists and sculptors and retained, in a consulting capacity other designers of international repute. Here automobile fixtures such as door knobs, dome lights, and the like, are designed with full appreciation of the correctness in color or scheme, lines and relief combinations, unit and collective compositions with a dominant note or motif to harmonize with and conform to the particular artistic ensemble presented by the special design of any new model of car.

In other words, this company furnishes a complete service to the automotive industry and whenever a maker of cars has designed a future model, he submits these designs to the Dura company which immediately sets its staff to work creating a full set of artistic fixtures that is best suited to this one special model. Hand-in-hand with the art department works the engineering staff, for the final choice of designs involves several factors such as price of car, cost of fittings, etc., which again involve such factors as intricacy of design, number and kinds of materials and finishes, weight, size, etc.

After acceptance, the new designs are made up in wax by sculptors and the models sent to the die makers who work up the dies. Along with this work the staff is busy developing new and distinctive types from which customers may make selections and samples for 1930, 1931 and 1932 are already on display.



A section of the main press room in the steel stamping division

A view in the polishing room. Note the absence of overhead shafting

The Dura Co. has just completed a million-dollar plant and its manufacturing departments include forging, stamping, channeling, plating and finishing. Most of the fixtures are die cast and in this department is a long line of die casting machines. These machines consist of hot metal reservoir, hot metal pump, dies and die handling mechanism. The reservoir consists of a vertical cylinder of brick, steel encased in the top of which sets a metal pot while gas burners fire into the chamber just below the pot to heat the metal.

A cast-iron container with a goose neck on one end and an air hose

on the other dips down into the metal. The two halves of the dies are held in place by a moving mechanism which keeps them together under pressure. When the dies are in position the goose neck rises, the hot metal is forced into them with air pressure and the dies are pulled back and apart, thus allowing the product to drop out, all in a single operation.

Each machine is equipped with an automatic temperature control and recording pyrometer so that the molten metal is always kept at the right heat, approximately 800 degrees Fahr. The controller is connected with a motor-operated valve in the gas supply line of the burner under each pot. This fuel has been found to be the most economical and easily controlled for this type of work. Atmosphere regulation within the combustion chamber is a feature which prolongs pot life.

The automatic japanning installation with gas-fired heaters at the right

Section of the ornamental hardware inspection and assembly department

Straight-line mechanical production methods are used in this plant wherever possible and traveling conveyors, skid boxes, lift trucks and gravity systems, are used to handle the products between processes. In the plating room are two long series of tanks through which the work is moved automatically and continuously. While there are other setups for various types of plating, these two will finish 400,000 pieces in 9 hours. The plated parts are put into trays partitioned with cardboard liners and the trays placed on a belt conveyor which takes them to the polishing and buffing room.

This latter department is unique for here are more than 200 double polishing jacks with 400 odd operators, and yet not a belt, shaft or suction pipe is in sight. The motors, line and jackshafts, suction system are all located in the basement and out of sight. The polishing jacks are arranged in long double rows with traveling belt conveyors between. The trays of parts are distributed to the operators by trucks and as fast as polished are placed in boxes and the boxes put onto the conveyors.

On the last few feet of these conveyors are located inspectors who inspect the parts, replace them in the trays and put them on a long collection conveyor against which each of the other conveyors ends. This conveyor passes through the plating room and hardware assembly department.

Japanning Units Unchanged

Two of the completely mechanized units are those for making, japanning and baking the window channels and regulators. The two departments are almost side by side and each is served with an overhead monorail loop conveying system. At one point between these two departments is located a japanning oven and here the two conveyors converge to travel through the oven. The dry-off oven is adjacent to the japanning oven and is constructed as a part thereof. The two conveyors carry the parts through the processes of washing, rinsing,

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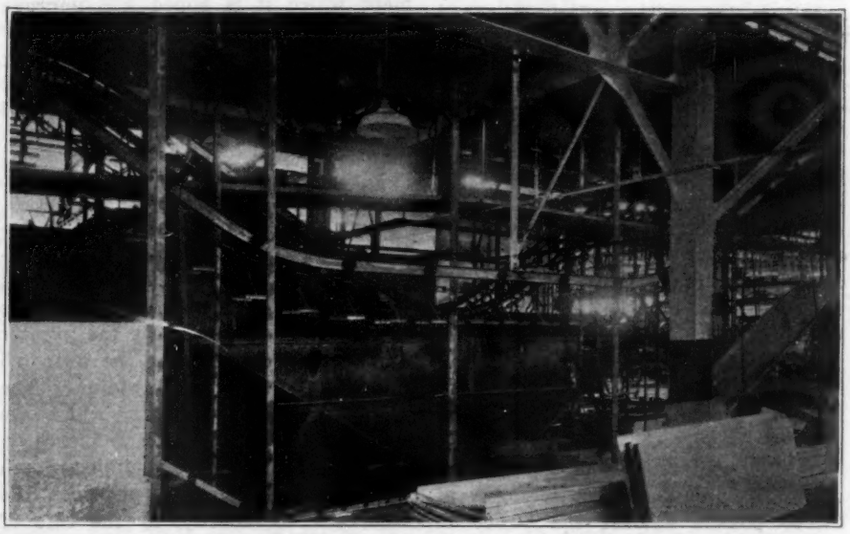


Side view of the japanning oven showing the conveyor and dip tanks

Development Program May Restore Prestige of Cast Iron

Joint Research Campaign Directed by New Gray Iron Institute Expected To Improve and Standardize Properties of Gray Iron

By L. W. Spring

CAST iron dates from about the fourteenth or fifteenth century. It was about that time in Germany that the primitive furnaces in which iron ore had been smelted with enough heat to produce only small, pasty lumps of iron had grown sufficiently large that the iron produced became fluid under the heat and absorption of carbon that it would run from a tap hole in the bottom of the furnace. Cast iron, then, has been used for nearly four centuries. While it was not adapted for swords or for small arms for war, nor for any procedure in which forging or severe bending formed a part, it was invaluable in the casting of heavy cannon and later for miscellaneous castings, engine beds, cylinders, fly wheels, cast water pipes, soil pipes, and many other important products.

Cast Iron and Steel

Steel has been made in many varieties since its production in commercial quantities as a result of Bessemer's invention of 1856—some soft and ductile as in fence wire, some hard and brittle as in needles and sharp edged tools. Cast iron has no such properties, but it has others which adapted it well for certain purposes for which steel will not answer. These properties are high fluidity, enabling it to fill intricate molds at comparatively low temperatures; low shrinkage while the metal is solidifying in the mold; easy machining, because of the natural cleavage or breaking up of the grain of cast iron by the soft graphite flakes and the natural lubrication of the tool which these flakes afford; and considerably greater resistance to rusting and ordinary corrosive influences than the steel.

The natural objections to ordinary cast iron are its lower strength of 20,000 pounds against the 60,000 to 80,000 pounds per square inch for steel and its great brittleness or likelihood of breaking under shock or overload. Cast iron foundry owners have seen their products supplanted by steel castings, steel forgings and stampings, some of which are inferior from the standpoint of corrosion and other qualities.

Now it appears that this lowliest of the ferrous alloys is undergoing rejuvenation. Certain metallurgists have insisted that a material of so many excellent qualities perhaps could be converted into a more adaptable product if proper effort could be put into its development. The results of two or three experiments have been so encouraging that considerable change in the attitude toward cast iron is coming about.

Perhaps the most interesting point just now is the formation of the Gray Iron Institute Inc., which will follow the system used by the steel manufacturers, by the Malleable Iron Research Institute Inc., formerly the American Malleable Castings association, and by others, the foundry owners supporting jointly a campaign of development which it is hoped will improve the properties of cast iron and standardize the better product, following which advertising and sales campaigns will endeavor to bring this material into the position it deserves.

Free Graphite Is Factor

Cast iron is made in several varieties, each having particular advantages. Soft cast iron with about 20,000 to 25,000 pounds per square inch tensile strength owes the greater part of its character to the 3 to 3.5 per cent carbon it contains. The amount of free graphite, which we may call the dominating influence in cast iron, is controlled mainly through the amount of silicon put into the iron, and secondarily, by the rate of cooling the iron from the molten into and through the solid state. The higher the silicon the softer the cast iron, because of the greater advantage of graphitization induced; also, the slower the cooling after the iron enters the mold, the softer the iron will be. Ordinarily, gray iron such as is found in stove parts, engine beds, water mains and soil pipes, is of this type.

For some purposes, a considerably stronger cast iron is desired. By reducing the silicon content used in the cupola from the usual 2.50 per cent for soft cast iron to such lower amount as, say 1.80 per cent, less graphite is precipitated. The iron is a little harder, slightly less machinable, but with tensile strength of something like 35,000 pounds per square inch. This type of iron is known generally as semisteel, although certain foundries and scientific societies, are endeavoring to give it the more significanct name of high-test cast iron, which it is, of course, because of its 50 per cent greater tensile strength.

Many Uses for Chilled Iron

For several decades the farmer has known the Oliver chilled plow and the railroads have used chilled car wheels. These products, along with brake shoes, chilled iron rolls for rolling mill work, gears and other parts which must stand hard wear, have been cast from iron containing much less silicon even than semisteel. These chilling irons contain from 1.5 to 0.09 per cent silicon or thereabouts, the amount depending on the depth of chill desired. When cast against a chill or cold piece of iron which is inserted to form part of the mold, the molten iron is made to freeze almost instantly into a white, extremely hard layer so hard as to resist wear and abrasion. The iron is white because the quick cooling allows the graphite

flakes little or no time to crystallize out. Usually the chill is so arranged that the white or chilled layer will be backed by a heavier layer of iron, which is kept gray by slower cooling. This gray layer, while much softer, has much less brittleness and thus contributes to the strength of the casting.

We are all acquainted with malleable cast iron, the somewhat ductile metal of which the cast parts for agricultural machinery, railroad car bumpers and brake beams, pipe fittings, and some hammers, tin snips, and other tools are made. The composition of such iron, its pouring temperature and handling have to be regulated with extreme nicety. It is a highly chilling iron with from 0.75 to 1.0 per cent silicon, which chills so readily that every part of every casting must come white in fracture after cooling in the mold. This is necessary because such brittle iron can be made malleable only after 40 hours or more of continuous annealing at a temperature ranging between 1400 and 1800 degrees Fahr. in closed pots, followed by slow cooling of not more than 10 degrees Fahr. an hour, through the critical range of from 1400 to 1200 degrees Fahr. A slight blow from a machinist's hammer will shatter into many pieces a small casting just taken from the mold, all with white fracture, but after the annealing process of approximately a week, the casting is soft and malleable and can be broken only with difficulty.

Graphite Not in Flakes

While this material after annealing has a total carbon content of from 2 to 3 per cent, the metal remains malleable because by the annealing process the carbon separates not in flake form, as in gray iron, but rather in granular form in which it is seen under the microscope as little balls of "coke" lying among the grains of iron. There are no cleavage planes in annealed malleable iron and the continuity and adjacency of the iron grains obviates the brittleness and makes for ductility.

Besides these four common varieties of cast iron, which of course, are varied in composition somewhat for different purposes so that one class sometimes merges into the other, we now have a newcomer—a more aristocratic cast iron known as pearlitic cast iron. As explained already, cast iron has been noted for and used because of its good qualities—fluidity, easy machinability, high compressive strength, and comparative low cost—but always it has been heavily penalized because of its brittleness or low shock strength and for its lack of sufficient tensile strength. Theoretically, the metallurgist considers cast iron as being steel into which an added constituent, flake graphite, has been introduced and distributed. It occurred to the metallurgist that during the casting process it might be possible to diffuse this graphite in a way somewhat analogous to the manner of its form and distribution in malleable iron—that is, better distributed and without the long, curly, fragile flakes which produce cleavage planes in cast iron. The result is pearlitic cast iron, which under the microscope, is seen to have a somewhat greater amount of pearlite (the strength giving constituent of steel) with almost a total absence of long flakes of graphite, these being replaced by graphite in small rosettes or better in little stubs. Viewing the structure through the microscope probably even the least experienced would decide that there would be less fragility in the alloy, and this is the case.

This desirable strong and tougher pearlitic cast iron can be made by three main processes which are coming gradually into use. By the first of these, a low-silicon or chilling iron, which would give white fracture castings if poured as usual, is poured instead into heated molds, the higher temperature being sufficient to overcome any tendency of the iron to chill, and the lack of silicon preventing separation of grapnite. A second process produces castings with this desirable pearlitic structure through careful proportioning of the charge, carefully regulated composition, and the use of comparatively high pressure blast in the cupola. The third process brings about the same result by superheating the molten metal to a high enough temperature so that on pouring, the molds themselves in effect are automatically heated by the metal, and the still molten iron is allowed to cool in them. While the first two processes mentioned are cupola methods, the third uses the electric furnace, by means of which the iron can be highly superheated, sometimes to 3000 degrees Fahr. or more.

Just as malleable cast iron under the co-operative working of the American Malleable Castings association, now the Malleable Iron Research Institute Inc., during recent years brought malleable iron to a much higher degree of perfection and into much more effective competition with steel products, so these new cast irons under the tutelage of the new Gray Iron Institute Inc. are likely to assume greatly enhanced prestige and may go far in retrieving much of the ground which cast iron has lost during the past three or four decades.

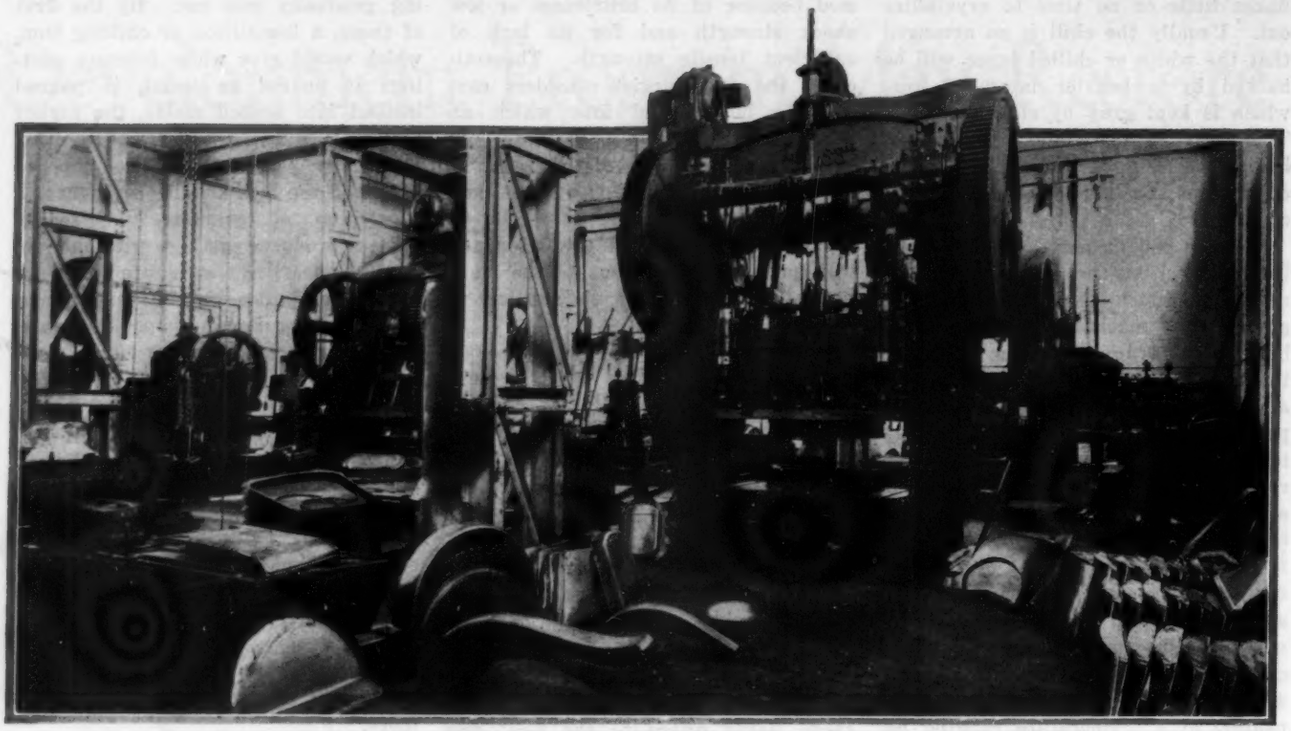
Sees Expanding Use of Gray Cast Iron

PROPERTIES of cast iron are high fluidity which enables it to fill intricate molds at comparatively low temperatures; low shrinkage while the metal is solidifying in the mold; easy machining because of the natural cleavage or breaking up of the grain of the iron by soft graphite flakes and the natural lubrication which these flakes afford to the tool; and greater resistance to rusting and ordinary corrosive influences to steel. The chief objections are a relatively low tensile strength and brittleness under shock or overload, objections which have favored supplanting cast iron with steel. Now a concerted effort is being made to return cast iron to its legitimate position as a material of construction, an effort sponsored by the recently organized Gray Iron institute. Results already attained point to a material improvement and standardization of gray iron properties. The accompanying article, discussing the future of cast iron, is taken from a paper presented before a recent meeting of the Chicago section of the American Chemical society. The author, L. W. Spring, is chief chemist and metallurgist, Crane Co., Chicago.

Steel Founders' Society Schedules Meeting

Pittsburgh has been selected for the next regular meeting of the Steel Founders' Society of America on Dec. 12, it has just been announced. Plans also are being completed for a regular meeting of the society in Cleveland in the week of May 12, 1930, during the American Foundrymen's association convention. The latter meeting will be directed by John E. Galvin, Ohio Steel Foundry Co., Lima, O., vice president and chairman of the central division of the society.

Announcement also is made that R. L. Collier has been made assistant to Granville P. Rogers, managing director. For some time, Mr. Collier has conducted special work for a public utility company in Cleveland and for the past three years has been engaged in trade organization work in the electrical field.



An American-made 400-ton press in the plant of the Austin Motor Co., Birmingham, Eng.

Production and Foreign Trade Show European Industry Improved

By Vincent Delport

European Manager, Iron Trade Review

THAT conditions in the British iron and steel, engineering and shipbuilding industries have materially improved since the year began is shown by production and foreign trade figures available to July 31. The situation of the principal producing countries of the Continent continues satisfactory, allowance being made for the quieting influence of the summer months. Some of the smaller countries, such as Czechoslovakia, are quite prosperous in their heavy industries, and there are distinct signs of recovery in the industrial position of Italy. Discussions going on during the better part of the month at the Hague have had no direct effect on trade, but the agreement which has been arrived at with Italy with respect to coal imports from Great Britain, and with Germany and the creditor countries with respect to deliveries in kind, are bound to have a decided influence on British business prospects.

During the period Jan. 1 to July 31, the output of pig iron in Great Britain was 4,269,800 tons this year, compared with 3,960,000 tons in 1928 and 4,374,700 tons in 1927. It should be stated, however, that the figure for July this year, 671,900 tons, is the highest since May, 1927, and that since last February monthly figures for pig iron have been consistently going up. The output of steel ingots and castings during the period considered was 5,687,500 tons this year, against 4,956,600 tons in 1928 and 5,676,200 tons in 1927. Exports of iron and steel products in the first seven months of the year were 2,616,633 tons this year, 2,460,832 tons in 1928 and 2,336,788 tons in 1927. Imports, on the other hand, showed a declining tendency, the figures being 1,577,025 tons, 1,761,256 tons and 2,906,532 tons, respectively. Exports of coal to July 31 were 33,941,394 tons this year, 28,740,499 tons in 1928 and 30,495,210 tons in 1927.

These are bare figures, but they show a consistent all-round improvement of the heavy industries of the country. Underlying conditions also are progressing; the process of reorganization in the coal mining industry, from the standpoint of both production and selling, is gradually expanding. In the iron and steel trades, the trend is decidedly toward grouping works in large economic units; this will take some time, but such active minds and experienced leaders as Sir Arthur Dorman Long are behind the movement.

Of course, conditions in Britain generally are not yet prosperous. Many producers of pig iron and steel and manufacturers complain that prices are not profitable. Certain industries are experiencing difficult conditions, particularly the cotton trade, which has suffered from a complete lockout lasting from July 29 to Aug. 19. Owing to the unprofitable working of the mills, employers wanted to enforce a reduction of wages of 12½ per

cent. Confronted with refusal of the workmen, the operators closed their plants. The question was referred to arbitration and finally a reduction of wages of 6 per cent was agreed to. It remains, however, to completely reorganize the industry within itself. It may be said that at present the cotton industry is passing through a serious crisis and that it is the most adversely affected trade in the country, while in other branches conditions generally are improving.

Another indication of better prospects is the slight decline shown by unemployment figures. On Aug. 13 the number of persons unemployed on the register was 1,169,300, compared with 1,314,159 Aug. 13, 1928. The quarterly forecast of the bulletin of the Federation of British Industries also is more optimistic than usual. It says: "Trade and employment have been well maintained during the past quarter, and for the first time for many years the seasonal slowing-up of the early summer months has been moderate." It goes on to say that previously noted adverse influence show no signs of abatement, owing especially to dear money and the limitation of financial facilities.

French industries have continued active right to the middle of the summer. While the placing of new contracts has subsided for the present, most works have sufficient orders on books to keep them going and there is no unemployment to speak of. Many iron and steelworks are adding to their plant. New blast furnace stacks, steel furnaces and rolling mills are being erected, while others are being modernized, and production is expanding. The policy of scrapping old plant to replace by up-to-date equipment will result in cutting down production costs. On the other hand, increase in output capacity is a double-edged weapon, and may prove destructive should there be a material slackening of demand over a long period. This aspect of the situation is not lost sight of by certain leaders of French industry.

Already the French output of iron and steel during first half is higher than in the corresponding period of last year. In fact, the total reached to date is the highest ever attained. It can be expected that the ten-million-ton mark will be exceeded this year, both as regards pig iron and steel. This is an interesting point in view of the coming meeting of the European steel entente in the middle of September, and in conjunction with the fact that steel production in Germany, Belgium and Luxemburg also is on the increase. It is noteworthy that French exports are showing a marked tendency to decline. This is largely due to the gradual and consistent rise in costs, which is catching up with gold values since the franc has been stabilized. That, under the circumstances, French productive industries should gain in activity shows that internal trade is strong. There is a limit, however, to the capacity of absorption by the domestic market. How soon it will be reached depends

How European Countries Rank in Business

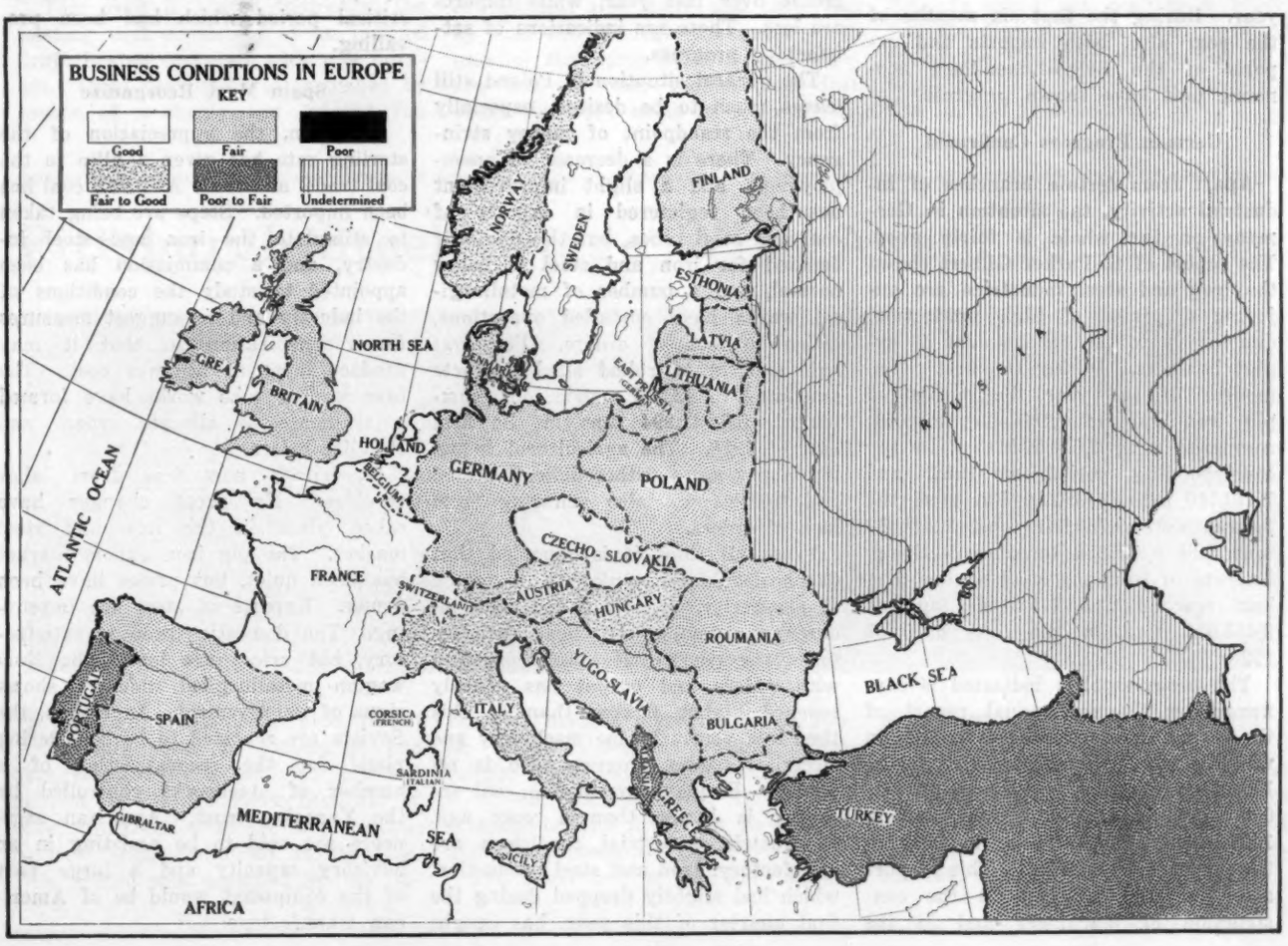
Good — ***Sweden, Holland, Belgium, Luxemburg, France, Switzerland, Czecho-Slovakia.***

Fair to Good—***Norway, Denmark, Italy, Austria, Hungary, Yugo-Slavia.***

Fair—***Finland, Esthonia, Latvia, Lithuania, Poland, Germany, Great Britain, Spain, Rumania, Bulgaria, Greece.***

Poor to Fair — ***Portugal, Albania, Turkey.***

Undetermined—***Russia.***



on numerous factors, of which one is the continued increase in the cost of living. However, the immediate outlook is fairly satisfactory and there should be no serious crisis in view as long as the French do not neglect their export markets.

In the Saar district, conditions are fairly satisfactory, although business done with French consumers is small, probably due to the holiday period. With Germany trade is more active. Export business is poor; ship freight rates have been increased. There is considerable depression in the building industry and this has a detrimental influence on the domestic demand for steel.

Conditions in Belgium and Luxemburg are generally satisfactory. Demand for coal is good, and above the level of output. The iron and steel market is quiet, following a period of considerable activity during the spring. The works, however, are well covered for orders, and prices, although not so high as earlier in the year, are still profitable. An indication of Belgian prosperity is supplied by the results of the railroads during first half, which show that receipts have increased by 229,000,000 francs ($6,375,000), compared with the corresponding period of 1928. It should be noted, however, that certain freight rates were increased since April this year. During the first six months of the year also, both imports and exports of the Belgo-Luxemburg economic unit have shown progress.

German Progress Confirmed

Apart from certain branches of industrial activity, the situation in Germany on the whole is fairly good. The report of S. Parker Gilbert shows the iron and steel industries are enjoying a period of high production, due mostly to the development of export business. During the first seven months of the year the output of pig iron was 7,747,189 metric tons, compared with 7,618,994 tons in the corresponding period of 1928, and 7,470,716 tons in 1927. For steel the figures were 9,786,387 tons, 9,230,013 tons and 9,312,855 tons, respectively. Exports of iron and steel during first half reached 2,835,775 tons, against 2,453,011 tons in the first half of 1928.

The progress thus indicated is confirmed by the semiannual report of the Reichs Kredit Gesellschaft A.G., in which it is pointed out that the monthly output of coal is now about 13,500,000 tons, against 12,500,000 tons in 1928 and 11,000,000 tons in 1913 in the present foundries. This report also indicates progress in the construction of machinery and in the building industry. On the other hand, it emphasizes the point that Germany's prosperity depends largely on foreign capital, which has not been freely available of late, and that in order to rebuild its own capital and credit structure it is necessary that the country should still further develop its export trade. Unemployment figures show a considerable reduction. From two million at the beginning of the year they are now substantially less than a million. The coal, iron and steel and engineering industries are the least subject to unemployment.

Automotive Industry Slack

Certain branches of industry are depressed. Among these is the automobile industry which, strange to say, is apparently not organized on the same efficient plans as many other German manufacturers. Rolling stock works are also suffering from lack of orders. Shipbuilding, on the other hand, has improved.

In an industrial country such as Germany, there are bound to be inequalities in the various trades, but the most important branches are fairly prosperous. Steel securities are rising on the Berlin stock exchange, and the value of total exports for the first half of the current years shows an increase over last year, while imports are less. These are indications of satisfactory progress.

The general situation in Poland still leaves much to be desired, especially from the standpoint of money stringency. There is a decrease in unemployment, and a slight improvement has been registered in exports of coal and steel tubes, but the domestic demand for iron and steel is below normal, and a number of metallurgical works have curtailed operations, owing to lack of orders. For first half exports of rolled steel products amounted to 42,514 metric tons, compared with 41,994 tons in the first half of 1928. The agricultural industry is passing a rather difficult period and textiles are also suffering from lack of orders.

From all sides it is reported that Czechoslovakia is enjoying a period of prosperity. The iron and steel industry is among the most satisfactory, the works are well provided with orders and output has already reached higher figures than at this time last year. In the machinery and electrical trades progress also is reported. Employment in the coal industry is better than a year ago. In Austria, industrial conditions are satisfactory. Iron and steel production, which had slightly dropped during the first quarter of this year, has caught up, and if continued at the present rate will exceed last year's figures. The production of iron ore is rising, and in the coal mines employment has remained fairly good during the summer. Yugoslav trade is improving and harvest reports are satisfactory. Total imports during first half maintained their previous level, but exports have increased considerably.

Considerable progress has been made in the economic situation of Italy. Statistics of unemployment show a decline in all occupations except the metal and textile trades. The output of pig iron and steel has been increasing throughout May and June. For first half provisional returns give the output of pig iron as 341,700 metric tons, compared with 204,400 tons in the corresponding period of 1928, an increase of 67 per cent. For steel the figures were 1,107,700 tons and 895,800 tons, respectively, or an increase of 23.6 per cent. Recently, at the central siderurgical committee, Signor Georges Falk stated that occupation of the works was satisfactory, and that closer co-operation between producers and manufacturers is already showing good results and causing production costs to be reduced. Financial results are improving, although the trend of prices is downward. Italian prospects generally are favorable, and the country appears to have recovered from the critical period which had been prevailing.

Spain Must Reorganize

In Spain, the appreciation of the sterling rate has given a fillip to the coal trade, and some Austrian coal has been imported. Steps are being taken to stimulate the iron and steel industry, and a commission has been appointed to study the conditions of the industry and to suggest measures for reorganization so that it may produce more at a lower cost. The four leading tube works have formed a syndicate to allocate orders and stabilize prices.

Sweden is now free from labor troubles. No great changes have taken place in the iron and steel market. The pig iron export market has been quiet, but prices have been firmer. Exports of steel are improving. The domestic trade is satisfactory, but prices are low. The Norwegian metallurgical industry shows signs of improvement. In Russia, the Soviets are reported to be considering plans for the reconstruction of a number of steelworks controlled by the Yugoslav trust. American engineers are said to be assisting in an advisory capacity and a large part of the equipment would be of American manufacture.

Art a Factor in Making Automobile Hardware

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blow-off, dry-off, japan dipping, dripping and baking and then to their respective destinations, the regulator parts to an assembly section and the channels to a packing room.

The conveyors are of steel chain supported overhead every 32 inches by 4-inch ball-bearing trolleys, traveling in a 4-inch I-beam track and supplied with attachments for carriers on 16-inch centers. The conveyor for the adjuster parts is 1220 feet and for the channels 580 feet in length. Each is driven with a separate motor through a speed reduction gear train so that any desired conveyor speed may be obtained.

The oven is located in a gallery above the main floor and is of the apex type, that is, the main portion is elevated and the two ends slope downward to keep the heat localized and prevent cold air from entering. The horizontal portion of the oven is 60 feet long, 16 feet wide and 7½ feet high, while the inclined section at one end is 12½ feet long and 8 feet wide and at the other end is 12½ feet long and 16 feet wide. It is built of sheet metal and insulated.

This oven is heated indirectly, the heating unit consisting of an induced draft heater equipped with gas burners. Oven ventilation is furnished by means of a supply and exhaust fan and a system of supply distribution and exhaust ducts. The supply fan is driven by a 10-horsepower motor and the exhaust fan by a 5-horsepower motor. Automatic instruments control and record the heater delivery and oven temperatures. These instruments actuate air-operated valves on the lines supplying the gas burners.

The washing and rinsing machine consists of two long tanks enclosed overhead and provided with two separate systems of pressure spray headers, one for washing and one for rinsing the metal parts as they travel through. Motor-driven pumps force the liquids through the spray headers. This unit is 30 feet long, 6 feet wide and 8 feet high and the tanks will hold 1500 gallons each.

Dip Tank at Entrance

A V-shaped double-compartment dip tank is located at the entrance end of the oven and is 23 feet long, 5½ feet wide and 5½ feet deep. This is connected up with two mixing and straining tanks 5 feet long, 3 feet wide and 3 feet deep and two 2000-gallon storage or emergency tanks. The liquid japan is handled between these units by two motor-driven pumps.

The main conveyor rides along at the correct height to allow the work to dip into the japan and then rise up into and through the oven. Two parallel steel drip pans, 3 feet wide, are laid in this incline and just under the work so as to catch all excess japan and return it to the tanks.

The manufacture of the channels is accomplished in a group of rolling mills placed close to one end of one of the oven conveyors. These machines consist of a series of roll dies set in a single line on one base and are fed with rolls of strip steel which passes through continuously and automatically. As the strip passes along, each mechanical roll forms some portion of the final shape, the last one applying the finishing touch. These machines feed onto 60-foot tables with cut-off shears at the far end, where they are cut to the proper length, spot welded onto retainers, and put on conveyors.

The window regulator department is grouped around one end of the other oven conveyor and includes shears, punch presses with various forming dies, riveters, and other equipment. The parts are hung onto the conveyor as produced and after being japanned are unloaded in an assembly department where they are put together.

May Add Tin Plate Mill

Canadian Steel Corp. is contemplating construction of a tin plate mill at Ojibway, Ont., at a cost of $1,000,000, according to Ward B. Perley, president. Mr. Perley, however, stated that he could not confirm a report that the United States Steel Corp., of which the Canadian corporation is a subsidiary, has passed an appropriation for the expenditure.

Pittsburgh Steel Bridge Wins Award for Beauty

THE Sixth street bridge over the Allegheny river in Pittsburgh has been selected by a national jury appointed by the American Institute of Steel Construction as the most beautiful steel bridge completed during 1928. This bridge was designed by the bureau of bridges, department of public works, Allegheny county, Pittsburgh, under the supervision of V. R. Covell, chief engineer. It was constructed by the American Bridge Co. and the Foundation Co.

The structure is of the self-anchored suspension type, is 884 feet long, carries a roadway 37 feet 6 inches wide, has two car tracks and two cantilever sidewalks. The award was made from photographs and data submitted by many engineers throughout the country.

Open-Hearth Control Equipment Affects Quality of Output

Steelworks' Operators Discuss Furnace Design, Operation and Other Shop Problems at Tenth Semiannual Conference of Open-Hearth Committee

IN WELCOMING operating men to the tenth semiannual conference of the open-hearth committee of the American Institute of Mining and Metallurgical Engineers held in Hotel Stevens, Chicago, Nov. 5 and 6, L. P. Reinartz, president, emphasized that business conditions in the steel industry are sound. Registration totaled 130, the largest since the open-hearth group was formed five years ago.

English and German open-hearth operators have expressed a desire to interchange ideas on steelworks' practice with the American open-hearth committee. Some plan may be evolved in the near future favoring the proposal.

Not only did the subject of furnace control equipment bring out prolonged discussion at the daily sessions but its effect on quality production was amplified by the remarks of a steelworks' executive who spoke on "Taking the Guesswork Out of Open-hearth Practice" at a joint dinner meeting of the open-hearth committee and the Chicago branch of the American Institute of Mining and Metallurgical Engineers at the Chicago Engineers club, Wednesday evening.

Many members of the open-hearth committee left Chicago at midnight Wednesday for Alton, Ill., where they were guests of the Laclede Steel Co. the following day. The new 100-ton Stevens open-hearth furnace, which has averaged 30 gallons of oil per ton using cold metal charges, was inspected.

Local Conditions Influence Furnace Design

IN DISCUSSING the Pugh-type ladle, one operator stated that relining costs range between $800 and $1000. Skull losses, he asserted, approximate one-half of 1 per cent. At a plant where four 100-ton mixer-type ladles are operated for 150,000 tons open-hearth capacity, these ladles have afforded a reduction of scrap made, compared with ordinary ladles, of 3 pounds per ton. The mixer-type ladles at this plant handle 82,000 tons each before relining is necessary.

Various sized molds were mentioned as suitable for 12,000 to 13,500-pound slab ingots to avoid excessive segregation in rimming steel. One open-hearth superintendent suggested a straight sided mold, with a 1½-inch taper and a 1½-inch radius on the corner, for ingots 25 x 40 inches. Molds, 21 x 44 inches, were cited as satisfactory, although more segregation in this size ingot is to be expected than in an ingot weighing 6000 pounds.

Furnace control equipment was stamped as the most important problem facing open-hearth steelmakers. Little if any control equipment has been installed on open-hearth furnaces in this country during the past three years, according to the statement of one operator. Where automatic control has been installed, however, the equipment has had a material effect on the personnel. Moreover, costs have been reduced and a better grade of steel produced because of more accurate control. It was mentioned that furnace control equipment affords a reduction in the quantity of fuel used and in the volume of waste gases which in turn lessen scouring action on the outgoing furnace section.

Instruments Aid Operator

One operator pointed out that a 100-ton Stevens-type open hearth in this country is equipped with indicating and recording instruments to help the operator maintain uniform conditions. The average fuel consumption for melting cold charges is 27 gallons of oil per ton of ingots. The hearth of the furnace is 36 x 14 feet and the time from tap to tap is 10 hours and 40 minutes.

Various trends in the steel industry, standardized practices and recommendations for discussion were presented by the chairmen of the various standing technical committees. The committee on "Furnace Design" brought out the fact that local conditions and type of product must be considered in discussing open-hearth furnace construction. The hearth should be of sufficient area and depth to permit rapid melting, but not so shallow as to cause excessive oxidation loss of the charge. The hearth area per ton of steel varies from 4½ to 6¾ square feet. The bottom usually is made up of 9 inches of clay laid on the steel pan, 9 inches of magnesite or chrome brick laid on the clay brick and 9 to 78 inches of sintered magnesite.

Various types and thicknesses of roofs are in use, according to the report. The usual thickness appears to be 12 inches for the center section. The rise of the arch varies from 22 to 30 inches. The height of the skewbacks above the sill plate ranges from 4 to 6 feet. Some plants have adopted an 18-inch roof, using 22-inch ribs. It is claimed a roof of this thickness affords a campaign of 400 heats.

Construction of gas and air ports depends upon the kind of fuel used. The entire end of the furnace above the floor level should be considered because the manner of admitting the air and gas determines the rate of combustion. Regenerator capacity should be gained by increasing the depth rather than width, because the wide chamber has the disadvantage of not distributing the gases uniformly. The

side walls and roof of the regenerators are sealed against air infiltration and insulated to reduce heat radiation losses. Water-cooled doors and frames are used at most plants.

Many factors govern the making of quality steel, according to the report submitted by the "Quality Control" committee. High-grade iron was mentioned as one essential. A uniform slag in the blast furnace gives a uniform slag temperature and in return a uniform quality iron. To produce a good quality rimming steel, open-hearth furnace bottoms must be kept in good shape. Particular attention should be paid to the kinds of scrap that affect the charging rate per hour and to inspection in order to eliminate bronze, zinc, lead, tin, babbitt, copper, etc. If a heat when poured will produce a skull weighing 0.5 per cent of the charging weight, the required manganese should be added in the ladle; otherwise, all or part in the furnace. Tapping holes should not be allowed to become larger than 6 to 8 inches for a 125-ton heat. The metals in the ladle may be treated with some super-deoxidizer. The teeming temperature should be approximately 2850 degrees Fahr. and the molds should be cleaned, graphited and warm. The ingots should be delivered to the soaking pits 70 minutes after the pouring of the first ingot to properly heat them to 2150 degrees Fahr. in about two and one-quarter hours.

Produces Growing Heat

Slag influences the rimming action. One which is too heavy produces a growing heat. Steel which is tapped under a thin slag will require a deoxidizer, either in the ladle or in the mold. It is desirable to shut off the air a few minutes before the heat is tapped. This permits a softer flame and prevents the slag becoming thin. Moreover, removing the pressure in the furnace allows the steel to free itself of inclusions more readily.

The report of the "Steel Melting" committee brought out the fact that various percentages of pig iron charged have a decided effect on open-hearth practice. Starting with a 45 per cent metal charge and increasing to 70 per cent, each 4 per cent increase within this range decreased production 1 per cent. Moreover, an increase in the metal charged led to an increase in the quantity of defective bars rolled. For each 1 per cent increase in the metal charge, the cost of bottom material increased about 2 per cent. The amount of limestone charged per ton has an important bearing on production, cost and quality. Practice shows that by increasing the limestone charge from 10 to 12 per cent does not materially benefit the quality of steel. In fact, increasing the stone in the charge from 8 to 11 per cent decreased the output of steel 1 per cent for each one-half per cent increase in the limestone added. The life of the roof was lowered and the cost of repairs increased, due to the extra heat required to bring up the lime.

Mold Rise Important

The committee on "Pouring Practice" recommended a shallow ladle in order to reduce the force of the stream and to allow the impurities to rise. In discussing the rate of rise of the steel in the mold and the rate the steel issues from the ladle it was pointed out that the rise in the mold should be slow in order to obtain the desired result. Where the rate of rise in the mold is 9 inches per minute, the committee found that snakes in the steel disappeared and chipping costs decreased. In the pouring of 55 ingots and confining the rise of steel in the mold from 10 to 15 inches per minute, the chipping costs amounted to $1.08 per ton. This compared with a chipping cost of $2.21 per ton in the case where 56 ingots were poured.

Various data were presented on a new 135 gross ton open-hearth furnace installed at a Canadian plant. The furnace is fired with blast furnace and coke oven gas in the proportion of 5.6 to 1. During August the furnace made 61 heats with a total production of 8147 tons or 140.8 gross tons charged per heat. During September 58 heats were tapped with a combined production of 7839 tons or 147.8 gross tons charged per heat. Last month 67 heats were made totaling 9028 tons or 143.6 gross tons charged per heat.

Much Gas Mixed in Hour

Approximately 70,000 cubic feet of blast furnace gas is mixed off per hour. Gas burned per minute amounts to 3500 cubic feet, and has a thermal value of 241 B.t.u's. The furnace is reversed in 8 seconds at present, but in the near future reversals will be made in five seconds. Waste gases are exhausted through two stacks, each 8 x 225 feet. The stack is set off from the center of the furnace about 50 feet and has a draft of 0.54 inch water column. The stack temperature is about 1000 degrees Fahr.

Gas is burned direct in the furnace and does not go through regenerators. The temperature of the air and gas chambers is about 2150 degrees Fahr. The temperature drop in the regenerators amounts to 110 degrees in 20 minutes. The hearth size is 15½ x 42 feet and the bath is carried at a depth of 3 feet from the bottom of the hearth to slag line. Each port has a pitch of 3 inches in the foot. The gas pressure at the port averages 4½ inches water column. Raw dolomite is used for making bottom and the tap hole is closed with dead-burned magnesite.

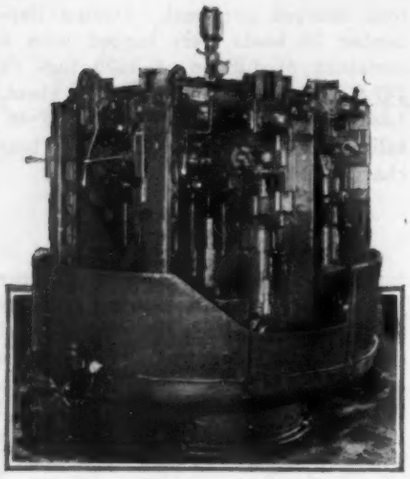
In discussing soaking pits, an operator mentioned that a recuperative soaking pit has been in operation at his plant for a period of eight months. Refractory recuperators are employed. The pit heats more uniformly from side to side but is less uniform in its heating of the ingots from top to bottom than the regenerative-type pit. This recuperative pit is built for a holding capacity of eight 20 x 22-inch ingots, each weighing 7000 pounds. Approximately eight hours' heating is required to bring the steel from a cold state up to a temperature suitable for rolling.

Advocates Working Tests for Steel Melter

DISCUSSING the question of inspecting ladle trunnions and crane cables for safety it was brought out by one speaker that many trunnions have hair-line cracks. These lines increase in size as a result of the slag running over the sides of the ladle. Every few weeks, therefore, the trunnion is washed with coal oil and inspected. In many plants crane cables are changed each year, after having handled approximately 200,000 tons of hot metal.

The use of soda ash as a purifier was discussed at length. One shop experimenting with soda ash added 125 pounds to the iron coming from the mixer and on another occasion 350 pounds on top of the lime in the open-hearth furnace. No difference was noted in working the separate heats. Steel to which soda ash is added pours oily, but appears to roll up better in the slab. One speaker mentioned that the use of a purifier is not a cure-all. However, with average practice it should give a cleaner product. At one plant using

(Concluded on Page 1252)



Applies Group Contract Plan with Success

By H. R. Simonds

Associate Editor, Iron Trade Review

Although new productive equipment is added constantly, the group contract remains successful

AFTER trying nearly every form for determining wage payment of workers, the Spicer Mfg. Co., Pottstown, Pa. has found that for its particular work the so-called "group contract" plan is superior to others. Under this plan the company in effect buys completed parts from the workers. The entire work of the plant is divided into convenient units. Some of these units cover the complete production of parts, others merely constitute a series of two or more operations on one particular part. Each unit is operated by a group which is an independent unit with its own foreman and inspectors, these groups ranging in size from 40 to 150 workers.

Each group picks its own leader, establishes its own time keeping system, pays its own inspectors and carries on the manufacturing operations within its own province. In addition, it takes care of oiling and the usual maintenance of belts and minor repairs. The company is responsible for five items: (1) Tools, including repair parts; (2) material to be manufactured; (3) buildings properly designed, heated and lighted; (4) final inspection; and (5) the price to be paid for the different parts or units. The workers do all the rest, although of course they have the hearty co-operation of the management in the matter of adjusting compensation within each group.

Under this general scheme, the company's loss in the case of poor work is for the material only. The scrap loss is practically negligible because it contains no labor charge against the company.

When this group plan first was put into operation, it was thought it would strike a snag when new tools were purchased or otherwise the productive rate of the plant was increased. However, changes are being made constantly and the plan of operation is most successful.

Because the plan is unusual it will be well to give a little background of the Spicer Mfg. Corp., to indicate the peculiar conditions which exist at Pottstown. The plant which covers nearly 500,000 square feet has but one kind of product—universal joints. The output of these joints at the present time exceeds 260,000 a month.

The idea of a universal joint came to C. W. Spicer while still attending Cornell university. He started manufacturing in Plainfield, N. J., and in 1920 started the Pottstown plant to take care of overflow demand. This second plant was so well arranged and the labor situation was so favorable that gradually the entire production of universal joints has been shifted there from other plants. The Plainfield plant since has been turned into a modern forge shop, forgings for the universal joints being shipped in carload lots from Plainfield to Pottstown. The Pottstown plant now employs over 1000 men with a weekly payroll of more than $31,000. The plant has grown rapidly and, during the past year alone, production has been increased 25 per cent, and more than half a million dollars worth of new tools has been added.

New Workers Recruited

Pottstown has about 20,000 inhabitants and therefore in building up a new industry, it was necessary to develop new workers. With the exception of a nucleus of trained workers from the Plainfield plant nearly all of the men now employed have been recruited from the rural districts within five miles of Pottstown. Many of the men have come direct from the farm to the plant and have proved to be excellent mechanics. This is a somewhat revolutionary procedure, but the plant manager, C. R. Guinee, says that for ordinary routine work he would prefer to break in a new man from the ranks of the nonmachinists. During the nine years that the plant has been in operation at Pottstown many of these rural recruits have advanced to places of responsibility and leadership. The use of women workers for many light machine tool operations has been found advantageous and the plant has been arranged to give female workers every convenience. The first aid department is in charge of a trained nurse, and a matron always is on duty in the rest room.

The plant first started on day work operations. This gave way to a premium pay scheme which in turn gave way to the conventional piece-work basis. The management feels that the present group basis combines the advantages of all these other systems, and that in addition it provides more pay for the man who is anxious to work. The question of lazy workers is taken care of automatically by the group itself. If the group recommends the discharge of one of its members or even of its foreman the recommendation is nearly always acted upon after the matter has been investigated impartially.

The organization of each group is similar to that of an independent business. At intervals the group meets to discuss general policies and progress and at these meetings a council is elected, usually consisting of three men. This council provides the contact between the company and the group and arranges for such matters as time study on new operations and the adjusting of so-called nonproductive labor within the unit. A typical group will have six or seven nonproductive men; One of these is a sweeper, one is a chip man, another is a tool repair man, another is an inspector and a fifth is the foreman himself. Frequently there is a setup

man, however, he acts as a relief man for other workers and therefore is in the productive class.

Production in the plant is on the straight-line progress method first established in large automobile plants. Down the center of a long double row of tools extends the conveyor belt which carries the pieces from one operation to the next. This slowly moving belt serves as a pacemaker. A man on one operation knows that he cannot fall behind the established rate or he will slow up his fellow workers further along in the sequence. A healthy rivalry springs up between the groups and each is zealous in its desire for high production of good parts. A group soon realizes that its own inspection must be thorough else errors will be caught by the final inspection after the group has spent more labor on the particular part in question.

Group Pays for Inspection

As mentioned previously, each group hires and pays for its own inspector or inspectors, and it is surprising to see how strictly the group foreman hold their inspectors to careful work even though all group members know that pay is determined by the total number of completed parts passing inspection.

Payment due each group for each completed part is determined after a careful time study of all operations entering into the production of that particular part. The base rate per hour is assumed to be 60 cents for the productive machinist. In addition to the total figured on this basis, the group overhead may amount to 20 per cent. After the company has determined the price to be paid the group for each piece, it becomes necessary for the group to determine the percentage which each member is to receive.

Within a group each individual is given a constant based on his production or his contribution to the group as a whole. In addition to this constant each man is assigned an hourly rate. For example, the constant may be 25 and the hourly rate 60 cents. These two when multiplied together give 1500 and the total of all such multiplied items for all members of a group then is determined. To illustrate, this total may be 150,000 for the group. At the end of the week the total payment which the group receives for good work delivered is divided by the total figure of 150,000. The result is a unit from which the pay for each man is figured. For instance, the man with a 25 constant and a 60 cent hourly basis would receive 1500 times the unit determined from the week's pay.

The company manager has stated that it is only in cases where strong mutual confidence exists between the management and the workers, as well as a feeling of close contact and community spirit that the group plan will work successfully. That the plan is working successfully for the Spicer organization is shown by the high production and comparatively low production costs and the independent happy attitude of the workers.

Program Announced for Founders Meeting

The program just announced for the thirty-third annual convention of the National Founders association, at Hotel Astor, New York, Nov. 20-21, includes three sessions, two on Wednesday and one on Thursday. The convention dinner will be served on Wednesday evening. The detailed program is as follows:

Wednesday, Nov. 20

MORNING

Reports of officers.
Reports of committees.
"The Legislative Situation," by Walter Gordon Merritt, associate counsel, League for Industrial Rights.

AFTERNOON

"Finance," by Frank F. Winans, Baker, Winans & Harden, New York.
"Seven Years' Foundry Improvement," by D. R. Wilson, president, Wilson Foundry & Machine Co., and chairman, committee on foundry methods.
"Third International Foundrymen's Congress," by S. Wells Utley, vice president and general manager, Detroit Steel Casting Co.
"Business Policies and Business Information," by Roland P. Falkner, chief statistician. National Industrial Conference board.

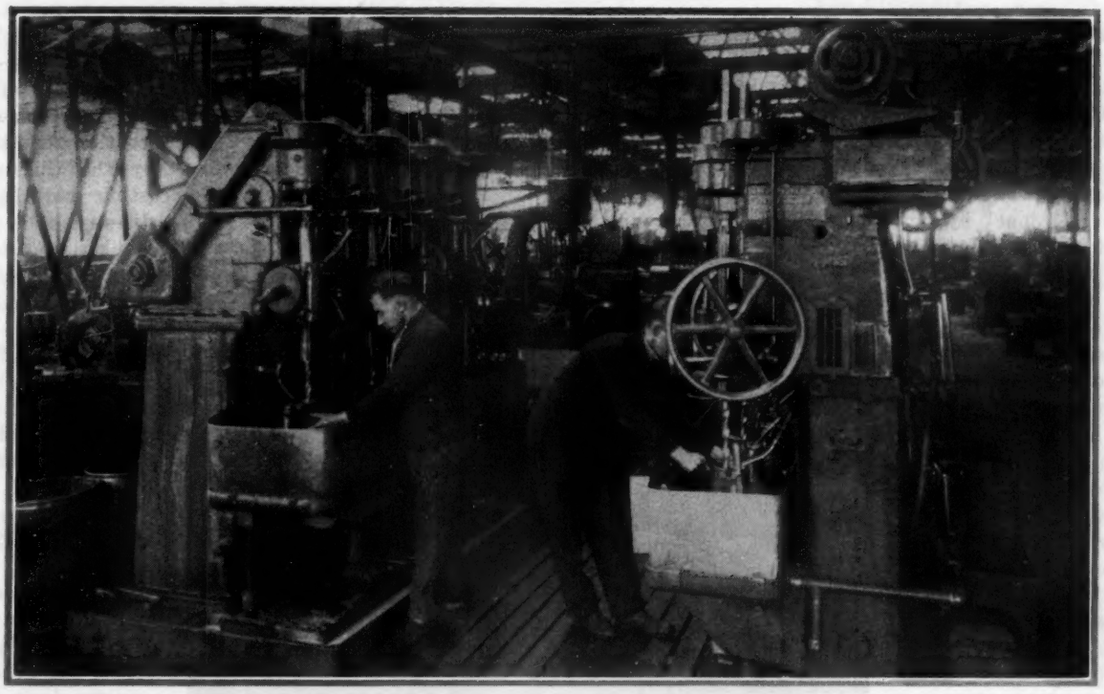
EVENING

Convention dinner.

Thursday, Nov. 21

MORNING

Convention breakfast. Discussion of foundry costs.
"Changing Ideas of Control," by Elton Mayo, professor of industrial research, graduate school of business administration, Harvard university.
"The Business of Selling," by R. C. Borden and Alvin C. Busse, professors of public speaking, New York university.
Election of officers.



A strong mutual confidence between the management and workers has made group wage payment a practical plan for the Spicer Mfg. Co.

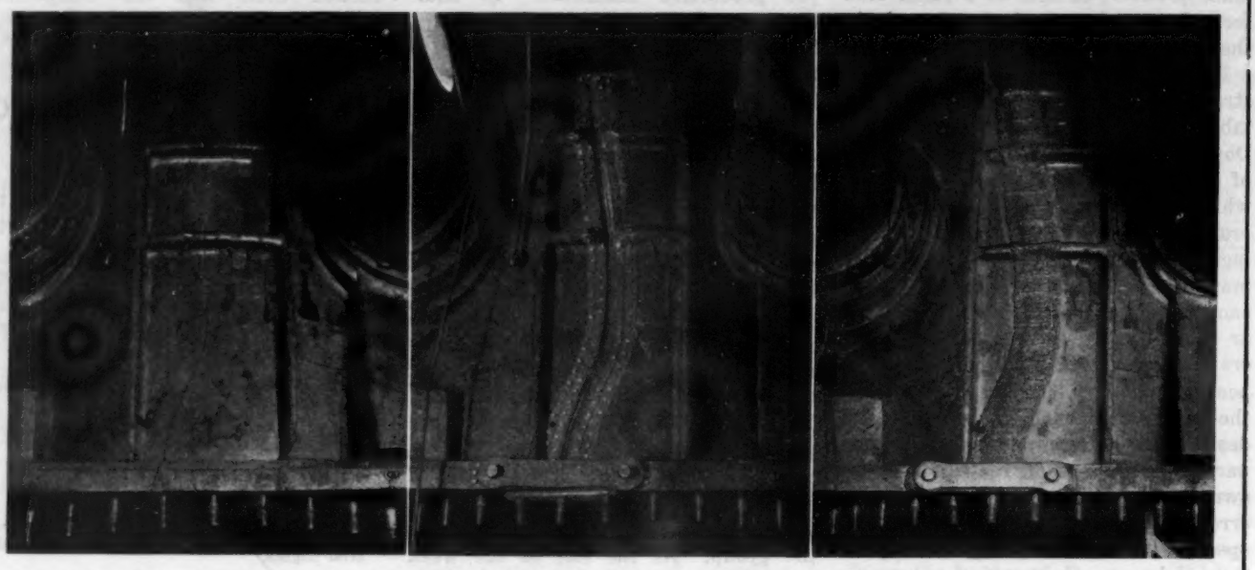


Fig. 7—(Left)—Crack in cylinder wall of vertical blowing engine. Length of crack 60 inches. (Center)—Crack prepared for welding by inserting steel studs along line of weld. (Right)—Repairs after completion by electric arc welding

Using the Electric Arc Process To Weld Cast Iron—II

By A. R. Allard

Works Department, Westinghouse Electric & Mfg. Co.

THE steel metallic-arc process of welding is the only method adaptable for certain applications. Examples of this are found frequently in castings which permit the use of only a limited amount of heat, and on jobs that require welding to be done by overhead manipulation of the arc. The following outline covers the general procedure recommended for metallic arc welding on cast-iron parts. In preparing a casting for this process care should be taken to remove all scale and sand by chipping or sand blasting the entire surface on which metal will be fused. Fig. 4 (Part I) shows the preparation as to grooving and studding as well as the welding procedure to be followed. A square groove is chipped along the lines of the break or crack. The size of this groove depends upon the thickness of the casting and is usually ¼, ⅜ or ½-inch square.

The groove then is filled up by welding until it is flush with the face of the casting.

The first stud in the casting is placed as close to the crack as practicable. The location of the stud is determined by the thickness and shape of the casting and the size of the stud. The size and number of studs are dependent upon the volume of added metal required to give the necessary strength. Studs should be long enough to extend through the first layer so that good fusion can be obtained between them and the second layer. A sufficient number of rows of deposit is welded around the first stud to reach to the center of the break as shown at X. This procedure will deter-

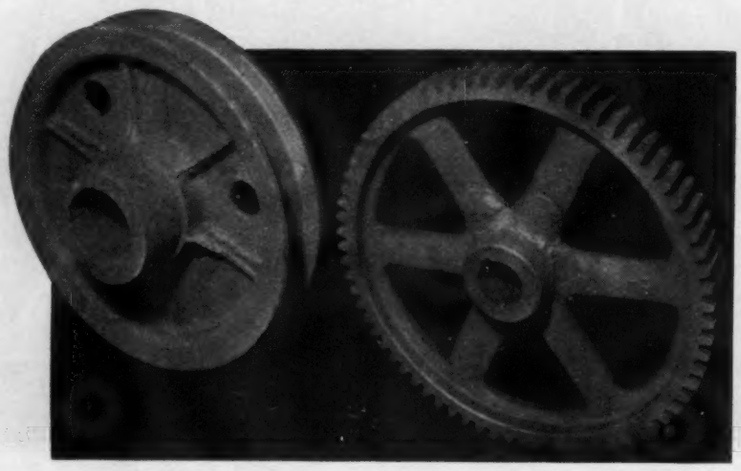


Fig. 8—Cast-iron gear and car wheel repaired by arc welding

mine the area covered by the metal surrounding one stud and will aid in locating the remaining studs. The necessary number of studs to complete the job is located and set. Next the grooves are chipped or ground. These may be either square or semicircular, although ¼-inch square grooves are used frequently. Grooves should be placed between the rows of studs if more than one row is used, and at the outside edge of the weld area. The grooves are welded flush with the face of the casting. The first layer is welded around all studs as was done with the first stud. The outside row of the pads of adjacent studs is not united at this time except where they merge into one another at the outer circumference. The second layer then is welded around all studs. Care is taken to make the pads cone shape, so as to leave a "V" to be filled when the pads are united. Additional layers next are welded if required.

All pads, except those at the line of the break are united. This operation is the last to be performed in order that the greater part of the shrinkage will have occurred before this union is made. In uniting the pads, when more than one layer of deposited metal has been added, it is best to follow the contour of the pads with additional rows of metal as the welding advances from the bottom to the "V" or base of the cones. Finally the weld at the break is united.

The operation of welding cast iron by the steel metallic-arc method should proceed slowly, with each addition of metal being small in order that the heat absorbed by the parent metal may be kept to a minimum. Drilling at the end of the break or crack is optional and is not often required. However, the casting never should get warm enough to expand and extend the break.

One of the mistakes made in the application of this method of welding is the practice of building up heavy sections or layers of steel adjacent to the cast iron. When good fusion is obtained the section of steel easily can be kept one-half that of the cast-iron section required to give the necessary strength. It is evident that when stresses are high enough to warp the steel, it will pull from, warp or break the casting.

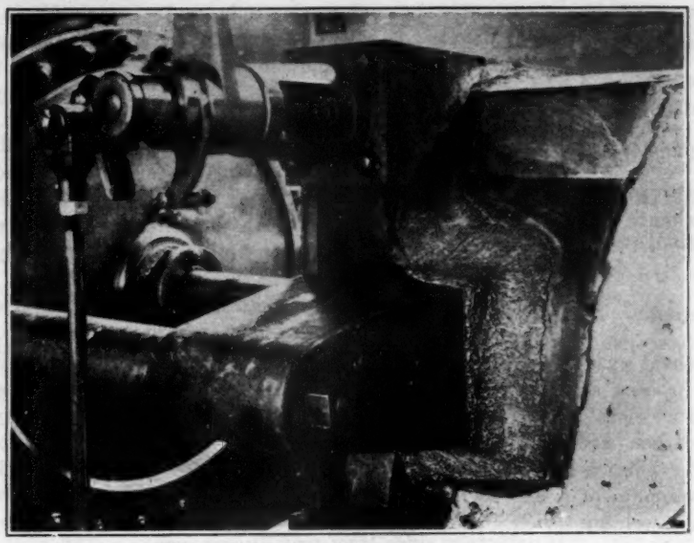


Fig. 9—Repairs made on engine block by metallic arc-weldng

The square groove at the break, when filled by welding, closes up the break and offers a projection against which the shrinkage of the added material draws the adjacent sides of the casting, thereby utilizing as an advantage one of the greatest trouble-giving factors encountered in cast-iron welding. The other grooves are additional insurance against leakage when welding cylinders or containers.

Part I of this article appeared on Page 969 of the Oct. 17 issue of IRON TRADE REVIEW.

The heavy sections of graphite cast iron usually encountered should not be "V"d out, because the casting, which chills quickly when cast, affords a better quality of metal upon which to weld than is presented as the casting is cut below the surface. As the cut becomes deeper the amount of graphite present in the metal increases. Examinations of "A" Fig. 4, section A-B, will show, that no increase of strength is gained by "V'ing" out in cases where the fusion between the metals is poor. Fig. 4 also shows another disadvantage to the beveling method of preparation. A considerable shrinkage of the steel filler material occurs no matter how carefully the work is done. Reference to the sketch will show that the shrinkage draws the bevels of the casting against the beveled boss of the added section, with the result that the pressure exerted tends to lift the steel section from the casting. And this occurs in many cases.

The practice, as outlined, will keep the effect of shrinkage strains to a minimum by affording a procedure which will keep the work cool, and by affording means of equalizing, balancing and taking advantage of the stresses which cannot be eliminated. The use of small electrodes, as low current as permissible, and straight-line welding without weaving or oscillating of the steel electrode, also will assist in keeping the parent metal cool and minimizing the stresses.

The procedure, if followed, will result in welds having the following characteristics.

1.—Good amalgamation of metals.

2.—Prevention of chilled metal at the line of fusion or in the weld.

3.—Provision for accommodating expansion in the casting.

4.—Elimination of gas pockets and holes.

5.—Same coefficient of expansion between the casting and the added metal.

6.—Deposition of added material which will approximate the characteristics of the original casting.

Each of the above characteritsics can be obtained as follows:

1.—Good amalgamation of metals can be obtained by proper filler material.

2.—Chilled metal at the line of fusion

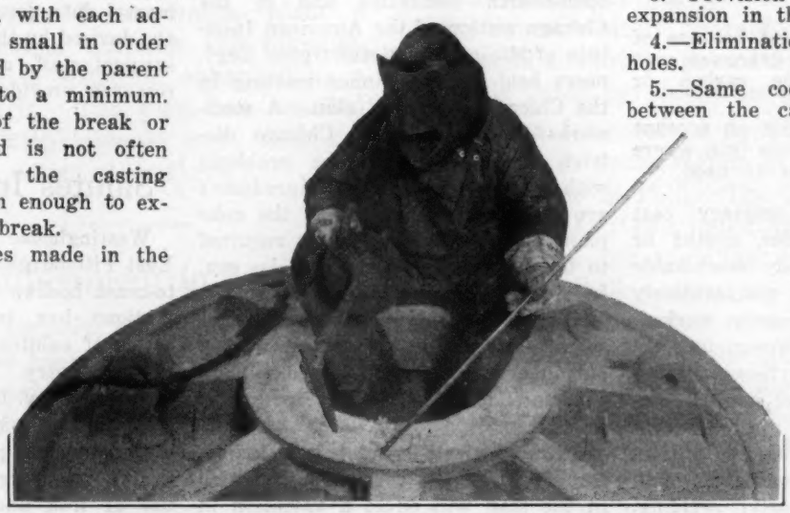


Fig. 10—Reclaiming a large casting by means of carbon arc process

or in the weld can be prevented by proper filler material.

3.—Proper filler material will eliminate gas pockets and holes.

4.—The proper filler material will result in a deposit which will have the same coefficient of expansion as the casting.

5.—The proper filler rod can be obtained which will approximate the characteristics of the original casting.

Preheating Not Required

It is not necessary to preheat castings with the metallic-arc process as the heat of the arc is more localized than in the case of carbon arc and oxyacetylene methods. This is one of the greatest advantages of the metallic-arc process in the welding of cast iron. However, precautions must be taken to hold the heat in the casting to a low value by using a small size electrode with a low-heat value and apply the metal in small sections, that is, proceed slowly in depositing the electrode material on the parent metal.

In good welding practice it is the usual procedure to use filler material having the same characteristics and which will respond to the same treatment, in the same way, as the material of the part being welded. Usually an allowance is made in the filler material to take care of losses of the constituents which are diminished by the welding process.

Electrode material for welding cast iron should conform to the following specifications:

High Carbon content to compensate for the loss of carbon due to the application of the intense heat of the arc and to promote the formation of good cast iron.

High Silicon content to compensate for losses and to promote the formation of graphitic or free carbon cast iron.

Low Sulphur content on account of its detrimental effects.

Low Manganese content because of the retarding effect it exercises over the formation of free carbon or graphitic cast iron.

Low Phosphorus content on account of the formation of brittle iron where any appreciable amount is used.

Welds made with ordinary cast iron and steel electrodes, coated or uncoated, are not readily machinable because the metal is comparatively hard, brittle and not easily worked, except by grinding. However, in some cases where smooth surfaces are required the parent metal can be machined to a depth of approximately 1/16-inch before welding and then the added metal machined flush with the original surface after welding. Also, cast-iron welds can be made machinable by using electrode material having a high percentage of nickel which is common practice where smooth surfaces are essential.

Special metallic electrodes for the arc welding of cast iron are available and may be obtained for any class of work as recommended.

Arc welding of cast iron has its biggest field of application in reclaiming broken and defective castings. Practically every metalworking industry has had occasions where broken and defective castings could be salvaged by the electrical arc.

Usually castings are worth several times their scrap value due to the cost of patterns and labor necessary to duplicate them. Furthermore, broken castings may cause a loss of production since they usually are component parts of some piece of machinery used in the regular line of production. With the proper arc-welding equipment and the services of a welding operator, it is possible to reclaim and salvage such castings and have them back in service within a short time, whereas new castings would require long delivery dates and cost several times the actual welding cost.

Advocates Working Tests for Steel Melter

(*Concluded from Page* 1247)

soda ash the management finds it obtains from 12 to 15 per cent more primes. One member, commenting on the use of soda ash, stated the product is restricted to iron and cast iron and that no advantage is had by adding this product to molten steel. It merely is used to remove sulphur in iron by a reaction which requires a reducing condition.

Wednesday evening, members of the open-hearth committee and of the Chicago section of the American Institute of Mining and Metallurgical Engineers held a joint dinner meeting in the Chicago engineers' club. A steelworks executive in the Chicago district, in speaking of the problems with which open-hearth steelproducers are faced, pointed out that the coke plant superintendent often is required to use coal mixtures as best he can. In view of the uncertainty as to the quality, the speaker contended that some series of tests must be worked out in order to assist the coke plant superintendent to deliver a quality product.

Silicon in iron is not a true indicator of its temperature and a variation in the slag will effect a variation in the iron, he stated. An unknown variable in the open-hearth practice is in the quality of scrap. Steel producers are faced with a growing mixture of alloys, such as lead, tin, brass, copper, etc., in the scrap which they are compelled to use. We may have to spend more money on scrap inspection, the speaker warned. Scrap yards at present may not permit the storage of carefully inspected scrap, but in the future methods may have to undergo a decided change.

Taking Out Guesswork

Good steel cannot be made out of a poor quality of iron, but despite this fact the open-hearth superintendent frequently is obliged to take whatever grade of iron is given him. Open-hearth operators with the proper working tools in the way of simple tests will take much of the guesswork out of the practice of making open-hearth steel. The industry at large knows that there is a variation in the temperature of the steel when tapped, the speaker stated, and therefore some kind of a pyrometer should be used for obtaining this temperature accurately. There is no indicator at present as to conditions of the steel before tapped and as a result melters have to depend on the condition of the slag. If better steel is to be made, he pointed out, some sort of a guide must be furnished the melting department. Handling of steel at the soaking pit is another important item and serious attention should be given to avoid overheating, which leads to cracks and in turn, rejected steel.

Rolling largely is a surface condition and if carried too far on one side defects will arise. The open-hearth operator is unjustly accused in many cases for a poor quality of steel. Much of guess-work in steelmaking practice will be eliminated when proper stastical classification of operating results is made, fundamental data determined, working tests are devised by the chemical and metallurgical staff, and a definite plan of research provided.

Salutes Iron and Steel

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., through a coast-to-coast hookup of radio broadcasting stations has inaugurated a weekly series of salutes to leading industries of the country. The first of the series, broadcast Nov. 6, was a tribute to the iron and steel industry and consisted of a half-hour program of music and drama typifying the development and use of iron and steel down through the ages to the present.

Editorials

Group Contract Plan Successful

INDUSTRY has heard much in recent years of wage payment methods and many plans have been tried. A system which proves satisfactory in one plant may be highly unsatisfactory in another, because no two companies operate under conditions that are identical. One of the systems ordinarily found unworkable is the group contract plan, consequently the article on Page 1248 of this issue describing one case in which this method is superior to all others is of considerable interest.

A Pennsylvania company producing universal joints exclusively, has divided its plant into a number of convenient units having from 40 to 150 workers. Each group sets up its own timekeeping, employs its own inspectors and carries on manufacturing operations, after which the product is sold to the company. The company supplies the place to work, the equipment, the material, final inspection and determines the price to be paid for the product. Each group member participates in the payment made to his group according to this productive ability.

By this system the company's only loss in case of poor work is for material, since a group receives no pay for work failing to pass inspection. The company adopted the group contract plan after first trying the day-work basis, a premium method and then piece-work. The present system combines the advantages of the other three and, in addition, provides more pay for the man who wants to work. A group automatically handles the problem of lazy workers.

In the case of this Pennsylvania plant a mutual confidence exists between the management and the works, a situation enhanced by a good community spirit. The plan has resulted in high production with lowered costs and, not least in importance, satisfied workers.

Seek Quick Adjustment in Metals

LACKING buying support, the nonferrous metal markets have been unable to resist pressure for lower prices. With the immediate industrial outlook clouded in uncertainty, consumers have practically withdrawn from the markets as buyers. Price cutting, naturally, has resulted, producers of some metals lowering their quotations drastically in an effort to reach levels that again will prove attractive to consumers.

Price cutting has been most spirited in lead and zinc. During the past two weeks or so the lead price has been clipped fully $13 per ton. It has been many months since lead was offered at such a bargain price as it is today. The same is true of zinc, which has been lowered by about $11 per ton since Oct. 19. Tin has gone down lately, and so has antimony. Aluminum prices have held, while copper prices have been easy.

Behind the sharp price decline, of course, chiefly lies the desire of metal producers quickly to reach market levels which again will induce buying. Since buying ordinarily is checked by falling prices, it is evident that the producing interests not only are seeking to reach new selling levels quickly but also are seeking to discourage excessive production.

Prices Stabilize Wages

A COMPARISON of working time and wage earnings of workers at open-hearth furnaces, in blooming mills, plate mills and puddling mills is afforded by a survey made by the bureau of labor statistics. Independent puddling, sheet and tin plate mills are the only departments in the iron and steel industry operating under agreement with a trade union. The average sales prices of the products of these mills regulate the wages at bimonthly periods. While the full-time hours per week have been reduced considerably at puddling mills, as shown by the bureau's study, there does not appear to be any special advantage gained by the men through the trade union agreement as to earnings.

The index for earnings per hour for workers in open-hearth furnaces stands at 301 in 1929, compared with 100 in 1913. The index for blooming mills is 251, and the index for plate mills also is 251. That for puddling mills is only 209. Comparing full-time earnings per week, the index for open-hearth furnaces is 227, for blooming mills 189, for plate mills 208, and for puddling mills 198. Average full-time weekly earnings at open-hearth furnaces are $41.20; at blooming mills $36.63; plate mills $37.06, and at puddling mills $34.51.

The index of full-time hours per week at open-

hearths and blooming mills today is 75, compared with 100 in 1913, while at plate mills the index now stands at 83, and at puddling mills 95. The actual number of full-time hours per week has dropped to 57.7 at open-hearth furnaces; to 55 at blooming mills, 58 at plate mills and 50.3 at puddling mills. All departments show a fractional increase in time worked, comparing 1929 with 1926, except puddling mills, where the weekly working time is shown to be 2.8 hours less than in 1926.

Making a Census Practical

TO GATHER information of value to American industry and to make it available in as short a time as possible is the aim of the department of commerce in the forthcoming industrial census. That results may be of the greatest value the department has called into consultation a committee of businessmen whose practical experience may be superposed on the technical knowledge of census making possessed by the bureau itself. This committee has been determining what industry desires to know from the census bureau that the latter may direct its efforts toward a definite result, rather than simply a maze of figures of perhaps doubtful value.

A schedule for manufacturers has been formulated, containing queries on matters which will yield data of value in determining problems of production and distribution. Other data have been eliminated as of no practical value. The schedule calls for much new information.

One class of data will point out industrial trends, included in which is migration of industry. This has been marked in many lines. Idle power equipment will be enumerated. Power installation is regarded as a valuable basis for market studies, but the presence of idle equipment robs these studies of much value, unless the percentage of idleness is known.

Special studies will be made of the assembled statistics and every effort is to be made to give conclusions and completed tabulations to manufacturers at as early a date as possible. As an aid to this result efforts will be made to have manufacturers make returns on their schedules at as early a date as possible.

By-Product Coke at Record Rate

PRODUCTION of by-product coke appears certain to set a new high record this year, marking a continuation of the steady upturn that has been in progress since 1919, when the by-product oven first took precedence over the beehive in point of output. By-product production of 25,137,621 tons in that year rose to 48,200,000 tons in 1928. The 1929 figure probably will run well over 50,000,000. During the same period production of beehive coke declined from 19,042,936 tons in 1919 to 4,376,000 last year. Record steel production is reflected in increased beehive coke output this year, idle ovens having been pressed into service to supplement tonnage from the by-product plants, and although the beehive seems destined to remain for many years as a source of coke production the by-product oven is firmly established as the large tonnage unit.

The trend toward increased use of by-product ovens has been one of the important steps in reduction of steelmaking costs. At the same time, it has been productive of by-products which have been of considerable value to other industries in addition to exerting a conservative influence on the consumption of the country's coal resources. By-product coke oven operation by public utilities has been expanding in recent years and gives indications of continuing this growth in the future, coincident with increased demand for gas and coke for both industrial and domestic requirements. The steel industry can take credit for considerable of the development work that has made possible the by-product oven.

What Our Readers Are Thinking

Pioneer Foresaw Institute Amity

To the Editor:

The report of the recent meeting of the American Iron and Steel institute arrived just as I was reading "A Journey to the Land of Eden" by Col. William Byrd, published by the *Vanguard Press.*

I believe that Col. Byrd belongs to the same family as the well-known Com. Richard Byrd and on page 342 of this book I noticed the following, referring to Col. Spotswood, he says—

> Then the colonel and I took another turn in the garden, to discourse further on the subject of iron. He was very frank in communicating all his dear-bought experience to me, and told me very civilly he would not only let me into the whole secret, but would make a journey to James river, and give me his faithful opinion of all my conveniences. For his part he wished there were many more iron works in the country, provided the parties concerned would preserve a constant harmony among themselves, and meet and consult frequently, what might be for their common advantage.

In view of the fact that this comment was made in 1732, almost 200 years ago, the friendly atmosphere evident at the meeting of the American Iron and Steel institute seems to have been a fulfillment of the desire of Col. Spotswood.

MALCOLM BAIRD, *Secretary-treasurer,*
Pressed Metal institute,
Buffalo, N. Y.

Nov. 1, 1929

IRON TRADE REVIEW

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Using the Electric Arc Process to Weld Cast Iron—Page 1250

Wall Street Crash Dazes Detroit

ONE month ago, IRON TRADE REVIEW *predicted in its "Mirrors of Motordom" that the period Oct. 15-Nov. 15 would be the dead spot of the year in automotive production. This is precisely what happened. Then came the Wall street crash and the industry slumped still more, in fact, several important producers suspended their programs and held up all material. Others have scaled down operations. A thumb-nail picture of the meaning of the stock market crash is to be found in the current chapter of "Mirrors of Motordom" appearing on Page 1279 of this issue. So swiftly and so drastically was Detroit stricken by the market debacle that it is difficult to make an accurate determination of the damage. At any rate, it seems certain that the steel industry cannot look to the automotive field for tonnage business until after Jan. 15.*

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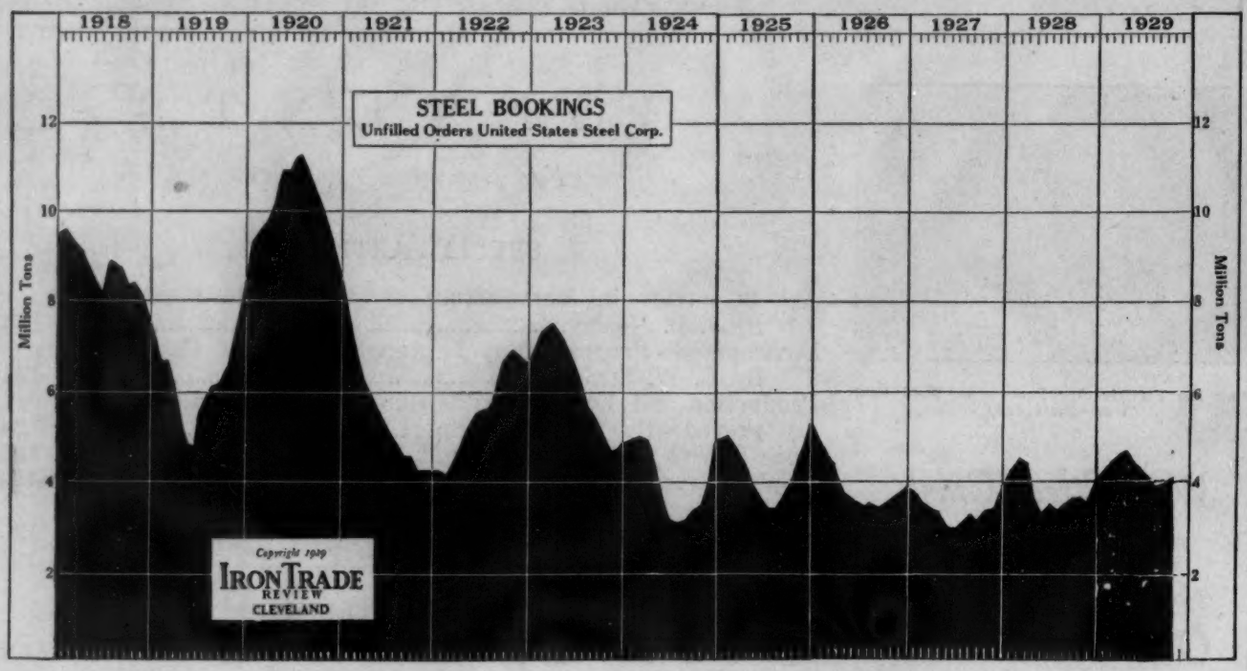
The Business Trend



Railroad Buying Expands Orders

By JOHN W. HILL, Financial Editor

THE October increase of 183,981 tons in unfilled orders of the United States Steel Corp. came as an opportune reassurance following the stock market collapse. It made apparent the fact that the flow of business has not entirely ceased while security holders stop to rub their bruises and mend their broken bones.

AT THE close of the month bookings of the Steel corporation stood at 4,086,562 tons, compared with 3,902,481 tons one month before and with 3,751,030 tons one year ago. The October increase follows one of 268,000 tons in September. It was somewhat larger than was generally expected.

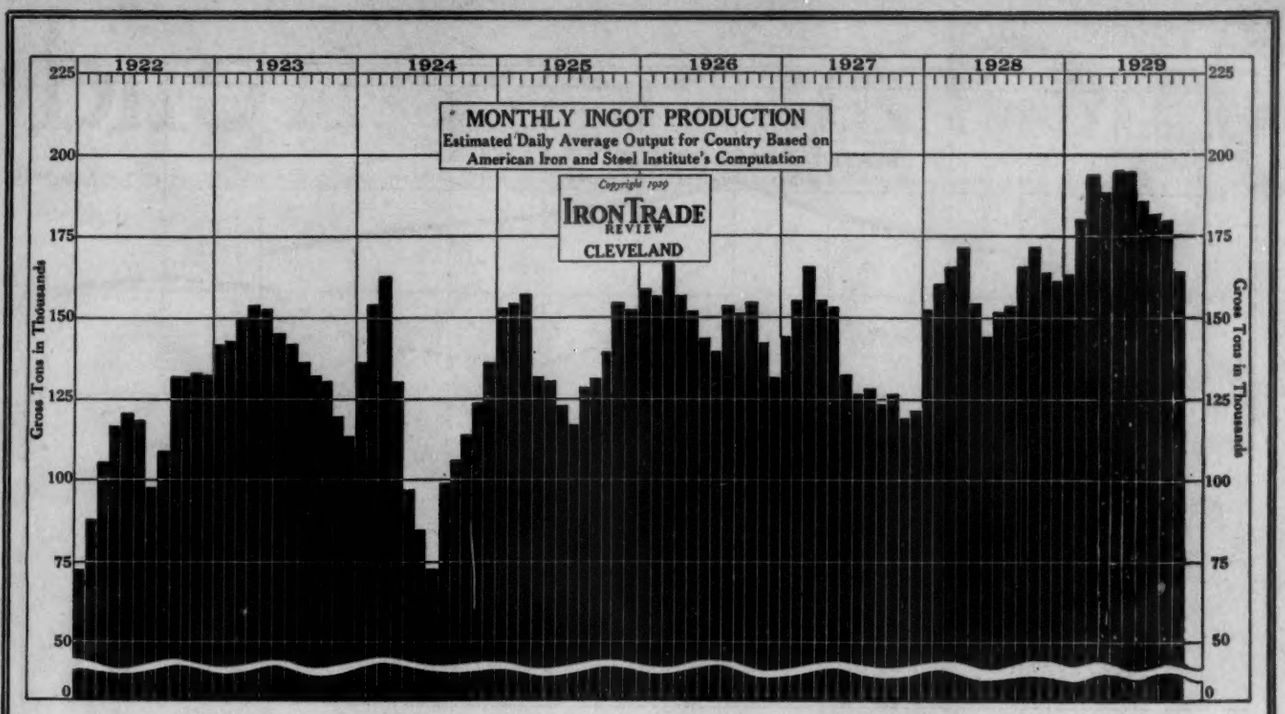
THE Steel corporation is approaching the close of the year with a substantial amount of business on its books. Much of the gain in bookings over the last two months has been attributed to railroad buying. Steel producers, a major part of whose products go to the automobile trade, have had a sharp reduction in orders, and their operating schedules have declined accordingly. No important pick-up in this activity is probable before the early months of next year.

THE influence of the automobile industry is reflected in a large measure in the record of steel ingot production in October. The daily average rate for that month was 167,098 tons, falling 3 per cent below that of October, 1928. The rate for October was the lowest of any month of 1929, except January.

THE event of overshadowing interest in the business and financial world continues to be the great decline in the stock market. The question of its significance for future business is uppermost. Since the break in security prices is the most drastic since 1920, does this portend a steep and prolonged recession for business similar to that of 1920 and 1921?

THIS is not within the realm of probability because of many fundamental considerations. The situation bears more resemblance to 1924. Commodity prices have not soared, inventories have not piled up, nor has credit been strained to the cracking point, as in 1920. There has been some overproduction in motor cars and a few other lines, but this is being corrected by curtailed production and general industry is not threatened with an extended slump.

The Business Trend

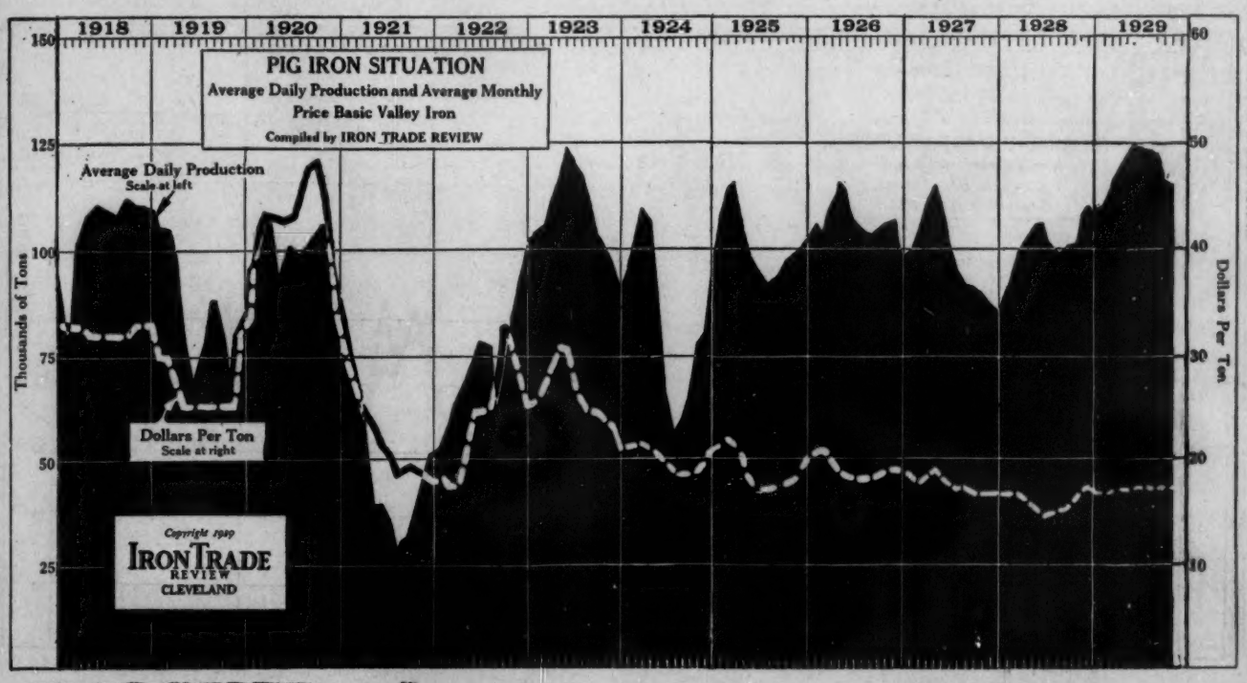


Steel Ingots

PRODUCTION of steel ingots in October declined below the rate of the corresponding month of 1928 for the first time this year. The daily average rate of output for the month was 167,098 tons, the lowest of any month of 1929 except January, when the rate was 166,309 tons. Compared with the peak for 1929 touched in May, the October average represents a decline of 14.5 per cent. The total production for 10 months was 47,755,054 tons, compared with 41,580,-142 tons for the like period of 1928.

Pig Iron Situation

DAILY average production of pig iron in October dropped to the lowest point of any month this year since February, but it was the highest daily average for any October on record. The rate for the month was 115,747 tons, compared with 116,548 tons in September and 108,824 tons in October, 1928. For the first 10 months of the year production of pig iron totaled 36,250,846 tons, compared with 31,157,341 tons in the corresponding period of 1928. Total production for all of 1928 was 37,831,741 tons.



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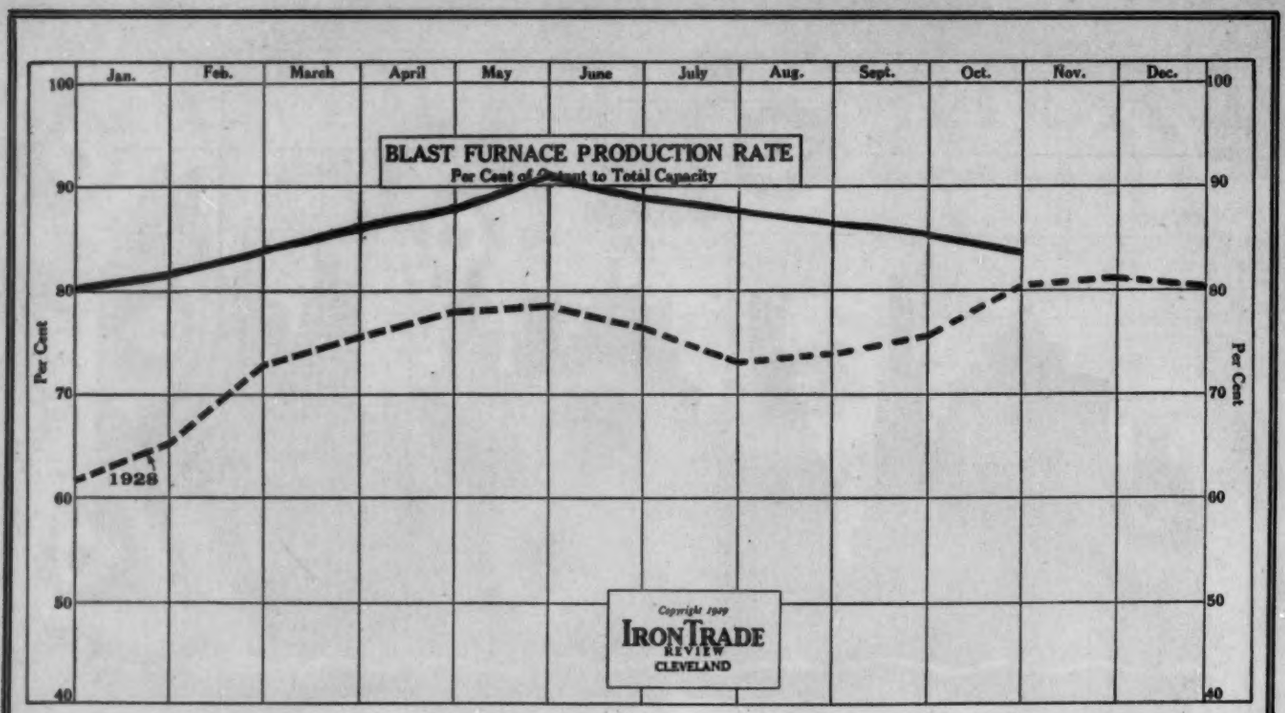
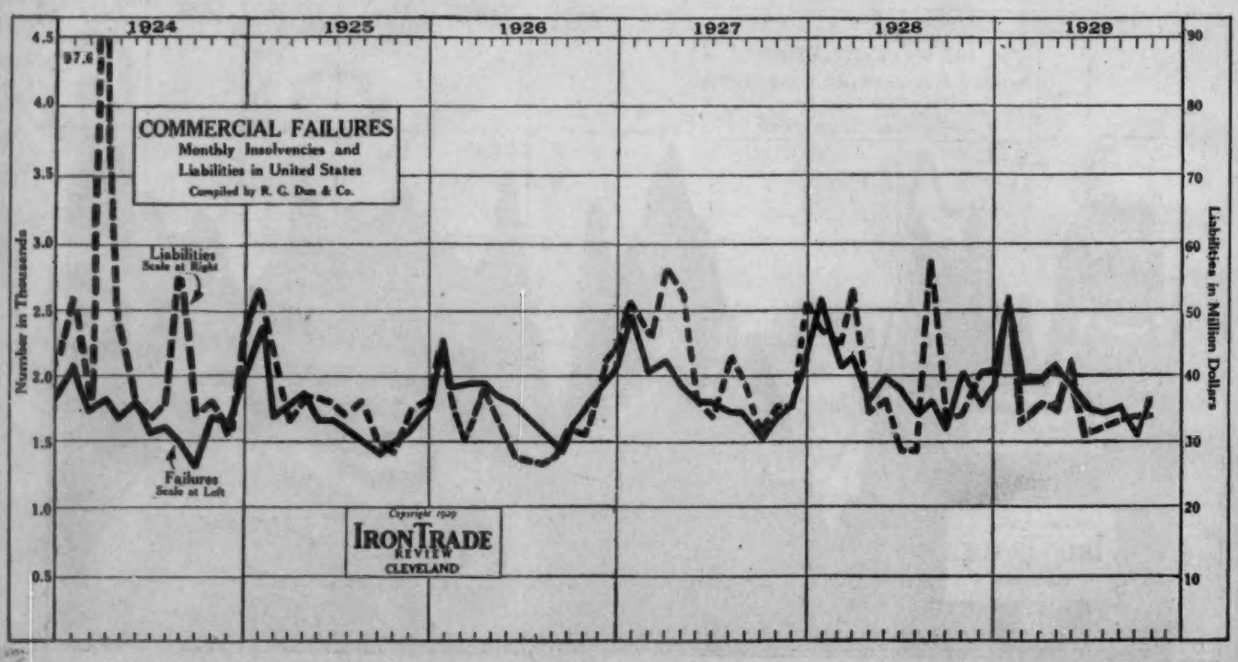


Blast Furnace Production Rate

THE rate of operation of blast furnaces in the United States during October continued at a high level. Production for the month was 83.9 per cent of actual capacity of blast furnaces. Capacity is 50,367,665 tons, estimated by the American Iron and Steel institute as of Dec. 31, 1928. The October rate compared with 84.5 per cent in September and 79.3 per cent in October, 1928. During the month there was a net gain of 1 in the number of blast furnaces in activity.

Commercial Failures

USUAL seasonal expansion of commercial failures was more moderate in October than in recent years. The number of failures as reported by R. G. Dun & Co. was 1822 in October, compared with 1568 in September. The figure for the month was 10 per cent lower than for the corresponding month of 1928. The increase over September was 14 per cent, whereas the increase in October, 1928, over September, 1928, was 23 per cent. Liabilities were $34,990,474, against $34,124,731 in September.



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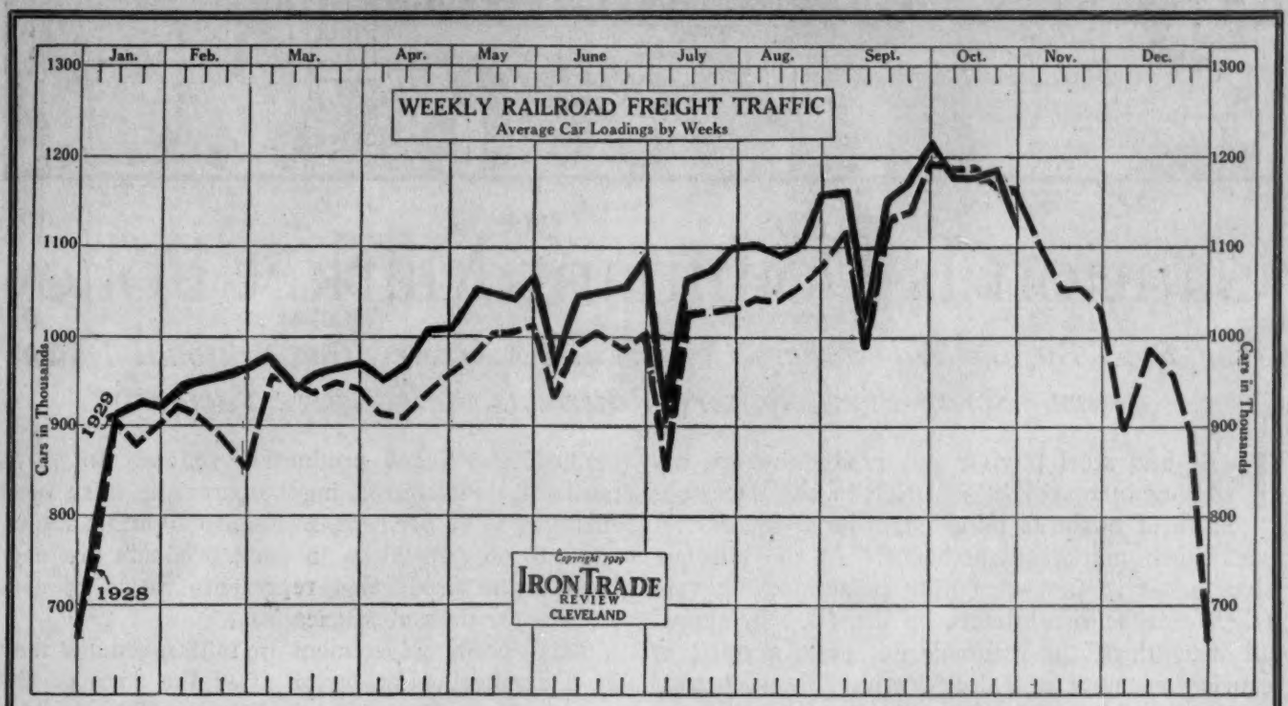
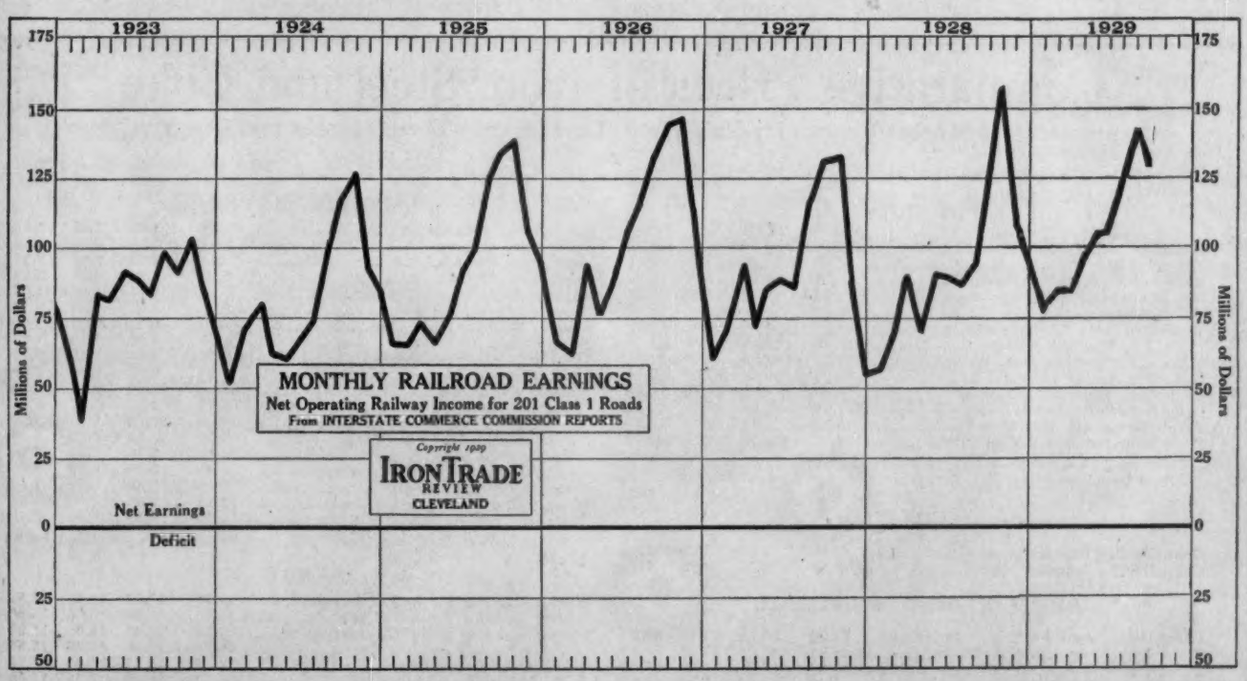


Weekly Freight Traffic

LOADINGS of revenue freight by railroads throughout the country for the week ended Oct. 26 totaled 1,139,810 cars. This was a decline of 51,000 cars from the preceding week and 20,160 cars below the corresponding week of 1928. According to the car service division of the American Railway association, the decline in the total from the preceding week was due to normal causes which always bring a reduction in traffic at this time of year. Loadings of merchandise in less than carload lots gained.

Railroad Earnings

NET earnings of Class I railroads in September declined from the high level of August and also were lower than in September, 1928. Net operating income for the month was $133,989,013, compared with $141,436,100 in August and $134,512,927 in September, 1928. Return on investment in September was 4.35 per cent, compared with 4.43 per cent in September, 1928. Earnings for the first ten months of the current year show an increase of approximately 17 per cent over the year before.



Caution Is Dominant Market Policy

Iron, Steel Buyers and Makers Conservative, Accelerating Seasonal Downturn—Scrap Prices Softer—Railroads Most Active Factor

IRON and steel buying and production are becoming increasingly sensitive to the uncertain state of business mind engendered by the recent stock market disturbance. In the automotive industry, first of major consuming lines to react, retrenchment has been drastic. In almost all other lines, the railroads excepted, a spirit of caution prompts a scaling-down of requirements pending a clearer view of the situation.

Stocks Not High; Prices Moderate

Usually at this season the iron and steel industry is succumbing to year-end inertia, and the effect of the decline in security values is to accelerate this trend moderately. Inherently, the position of the industry is strong. Neither producers nor consumers have large stocks of material to liquidate, and there are no high prices to deflate. Prudence rather than pessimism dictates a waiting policy.

As consumers grow more conservative, producers are taking off capacity commensurately. At Chicago three steelworks furnaces have been banked, and ingot production reduced to 75-78 per cent. Pittsburgh ingot operations have been curtailed to 75 per cent, Buffalo to 70 and Youngstown to 65. Backlogs in most products are negligible, and production represents needs of consumers for prompt fabrication.

This speedy adjustment in mill schedules may be a strengthening factor after the turn of the year, when railroad business normally provides substantial support. The increase of 183,931 tons in the unfilled orders of the United States Steel Corp. Oct. 31 indicates an accumulation of rail and car material for that period. October freight car awards of 19,506 were the heaviest for any month in over five years, bringing the 10-month total to 90,034, almost double the 44,763 cars ordered in all 1928, and foreshadowing the volume of car material to be rolled in the next two quarters.

Price Situation Shows Soft Spots

Pig iron prices hold well in most districts, though there are indications southern producers

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Nov. 13, 1929	Oct. 1929	Aug. 1929	Nov. 1928
PIG IRON				
Bessemer, del. Pittsburgh	$20.76	20.76	20.76	19.96
Basic, valley	18.50	18.50	18.50	17.70
Basic, eastern, del. eastern Pa.	19.75	19.75	19.85	19.75
No. 2 foundry, del. Pittsburgh	19.76	19.76	19.76	19.56
No. 2 foundry, Chicago	20.00	20.00	20.00	20.00
*Southern No. 2, Birmingham	14.00	14.00	14.00	16.38
**No. 2X, Virginia furnace	18.25	19.65	20.00	20.50
**No. 2X, Eastern del. Philadelphia	22.26	22.26	22.26	21.51
Malleable, valley	19.00	19.00	19.00	17.90
Malleable, Chicago	20.00	20.00	20.00	20.00
Lake Superior, charcoal, del. Chicago	27.04	27.04	27.04	27.04
†Gray forge, del. Pittsburgh	19.13	19.13	19.13	18.66
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	109.79
COKE				
Connellsville furnace, ovens	2.65	2.65	2.75	2.85
Connellsville foundry, ovens	3.50	3.75	3.75	3.75
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	35.00	35.00	35.00	33.60
Sheet bars, open-hearth, Pittsburgh	35.00	35.00	35.00	33.60
Billets, open-hearth, Pittsburgh	35.00	35.00	35.00	33.00
Wire rods, Pittsburgh	40.00	40.00	42.00	42.00

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.
†Now based on Pitts. dist. fur. price; formerly on Valley base.

	Nov. 13, 1929	Oct. 1929	Aug. 1929	Nov. 1928
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.90	1.90	1.95	1.95
Steel bars, Chicago	2.00	2.05	2.05	2.00
Steel bars, Philadelphia	2.22	2.22	2.27	2.27
Iron bars, Chicago	2.00	2.05	2.05	2.00
Shapes, Pittsburgh	1.90	1.95	1.95	1.95
Shapes, Philadelphia	2.01	2.01	2.06	2.11
Shapes, Chicago	2.00	2.05	2.05	2.00
Tank plates, Pittsburgh	1.95	1.95	1.95	1.95
Tank plates, Philadelphia	2.10	2.05	2.15	2.15
Tank plates, Chicago	2.00	2.05	2.05	2.00
Sheets, black, No. 24, Pittsburgh	2.75	2.80	2.85	2.80
*Sheets, blue anl., No. 13, Pittsburgh	2.35	2.35	2.35	2.05
Sheets, gal., No. 24, Pittsburgh	3.50	3.50	3.55	3.55
Sheets, black, No. 24, Chicago	3.00	3.05	3.10	3.00
*Sheets, blue anl., No. 13, Chicago	2.50	2.50	2.50	2.15
Sheets, galvanized, No. 24, Chicago	3.65	3.70	3.80	3.65
Plain wire, Pittsburgh	2.40	2.40	2.50	2.40
Wire nails, Pittsburgh	2.40	2.45	2.60	2.55
Tin plate, per base box, Pittsburgh	5.35	5.35	5.35	5.30
SCRAP				
Heavy melting steel, Pittsburgh	16.75	17.30	18.90	17.35
Heavy melting steel, eastern Pa.	15.50	15.80	16.75	15.90
Heavy melting steel, Chicago	13.25	14.45	15.05	14.50
No. 1 wrought, eastern Pa.	16.25	16.00	16.25	15.50
No. 1 wrought, Chicago	14.00	14.85	15.40	14.25
Rails for rolling, Chicago	15.50	17.05	17.75	16.50

*Comparison for November, 1928, is with old blue annealed base, No. 10.

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND

STEEL PLATES

Pittsburgh, base	1.90c to 1.95c
Philadelphia, del	2.10c to 2.15c
New York, del.	2.175c to 2.225c
Boston, del.	2.265c to 2.415c
Chicago, base	2.00c to 2.05c
Cleveland, delivered	2.14c
Lackawanna, N. Y., base	2.05c to 2.15c
Birmingham, base	2.10c
Coatesville, Pa., base	2.00c to 2.05c
Pacific Coast, c.i.f.	2.35c
St. Louis, del.	2.27c
Detroit, del.	2.19c to 2.24c

STRUCTURAL SHAPES

Pittsburgh, base	1.90c to 1.95c
Philadelphia, del.	1.96c to 2.01c
New York, del.	2.145c to 2.195c
Boston, del.	2.265c to 2.415c
Chicago, base	2.00c to 2.05c
Cleveland, delivered	2.09c to 2.14c
Lackawanna, N. Y.	2.05c to 2.15c
Birmingham, base	2.10c
Bethlehem, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
Detroit, del.	2.19c

BARS

SOFT STEEL

Pittsburgh, base	1.90c
Chicago, base	2.00c to 2.05c
Birmingham, base	2.10c
Lackawanna, N. Y., base	2.00c to 2.05c
Pacific Coast, c.i.f.	2.35c
Cleveland, base, local mills	1.90c
Cleveland, del., outside mills	1.95c
Philadelphia, del.	2.22c
New York, delivered	2.24c to 2.29c
Boston, delivered	2.265c to 2.415c
Detroit, del.	2.07c to 2.19c
Pittsburgh, cold finishing	2.05c
Pittsburgh, forging quality	2.15c

RAIL STEEL

Chicago Heights	1.90c to 1.95c
Eastern mills	1.85c to 1.95c

IRON

Chicago, base	2.00c to 2.10c
New York, delivered	2.19c to 2.24c
Philadelphia, delivered	2.17c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet, cut lengths	2.30c
Stock lengths from mill	2.05c
Chicago, billet	2.00c to 2.10c
Chicago, rail steel	1.95c to 2.00c
Chicago, rail steel, road and bridge work	1.95c to 2.05c
Philadelphia, cut lengths	2.52c to 2.62c

STAINLESS STEEL OR IRON

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel

Sheets	35.00c
Plates	31.00c
Bars	28.00c

SHEETS

SHEET MILL BLACK, No. 24

Pittsburgh, base	2.75c
Philadelphia, delivered	3.17c
Gary, Indiana Harbor	2.95c to 3.05c
Chicago, delivered	3.00c to 3.10c
Birmingham, base	3.00c
St. Louis, del.	3.27c

TIN MILL BLACK, No. 28

Pittsburgh, base	2.90c to 3.00c
Gary, base	3.00c to 3.10c

GALVANIZED, NO. 24

Pittsburgh, base	3.50c
Philadelphia, delivered	3.72c to 3.82c
Gary, Indiana Harbor	3.60c to 3.70c
Chicago, delivered	3.65c to 3.75c
Birmingham, base	3.70c
St. Louis, del.	3.92c

BLUE ANNEALED

Sheets, No. 13

Pittsburgh, base	2.35c
Chicago, district mills	2.45c
Chicago, delivered	2.50c
St. Louis, delivered	2.67c
Philadelphia, delivered	2.67c
Birmingham	2.50c

Plates, No. 9 and 10

Pittsburgh, base	2.10c to 2.20c
Chicago district mills	2.30c
Chicago, delivered	2.35c
Philadelphia, delivered	2.52c
St. Louis, delivered	2.67c
Birmingham	2.35c

AUTOMOBILE, NO. 20

Pittsburgh, base	4.00c
Detroit, delivered	4.29c

FURNITURE

Pittsburgh	4.10c to 4.20c

(*Turn to the following page*)

will seek first-quarter business at $13 to $13.50. The minimum on beehive foundry coke has been reduced 25 cents per ton. Iron and steel scrap prices in practically all districts have broken badly in the past week. Heavy finished steel prices continue under moderate pressure. Concessions have been made on most grades of sheets. On the Pacific coast plates have been shaded $4 per ton. Spiegeleisen prices have been extended into the first half.

Generally speaking, automobile manufacturers already producing 1930 models have curtailed their schedules, while those preparing to get into production have delayed their programs. Suspension of material has become general. Some production becomes necessary in December in preparation for the January automobile shows, probably to be followed by a relapse until the business situation can be fathomed. At the earliest, it would seem that the automobile industry will not be a heavy buyer of steel before late January.

Rail and Car Totals High

Chicago district mills have booked 52,000 tons of rails for the Chicago & North Western, with 3000 tons additional of light sections to be placed. Wabash is inquiring for 23,000 tons of rails and the Denver & Rio Grande for 15,000 tons. Southern Pacific in a few days is expected to allocate 122,000 tons of rails to the Colorado, Tennessee and Bethlehem companies. Twenty thousand tons of track fastenings is on inquiry at Chicago, with the Pennsylvania and Reading fair buyers this week in the East. Bids are in on the 5000 freight cars for the Rock Island, 3800 for the St. Louis-San Francisco and 600 for the Burlington. The week's car awards totaled 1100, including 1000 for export. Forty-six more locomotives are on inquiry.

Structurals Are Seasonally Active

Apartment and hotel projects enliven structural steel markets in the East, while bridge work and requirements of carbuilders for small shapes are heavy at Chicago. October structural awards in New York, exclusive of bridges and subways, totaled 85,699 tons, the highest month this year. Newark, N. J., has placed a waterline requiring 6000 tons of plates. The Standard Oil Co. of California will buy 100,000 tons of gas pipe. Tank work pending at Chicago totals 5000 tons.

October's daily steel ingot rate, at 167,098 tons, compared with 180,435 tons in September and 172,221 tons last October. It was the first month this year not to surpass the corresponding month of 1928. The October output of 4,511,650 tons brought the 10-month total to 47,755,054 tons, a record for the period and almost equal to the 49,865,185 tons produced in all 1928. Though iron and steel prices are subjected to pressure usually accompanying declining demand, there have been no reductions and IRON TRADE REVIEW composite of 14 leading iron and steel products is unchanged at $36.09.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (November 13, 1929)	$36.09
Last week (November 6, 1929)	$36.09
One month ago (October, 1929)	36.23
Three months ago (August, 1929)	36.54
One year ago (November, 1928)	36.02
Ten years ago (November, 1919)	51.28
Fifteen years ago (November, 1914)	23.39

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

Tubular Products Quoted On Last Editorial Page—See Preceding Page For Other Products

HOOPS, BANDS, STRIPS

Hot strip, to 6-in., Pitts	2.00c
Hot strip 6 1/4 to 24-in., Pitts	1.90c
Do, delivered Detroit	2.09c to 2.19c
Hot strip, bands 6 in. and under, Chicago	2.10c
Do, 6 1/4 to 23 1/8	2.00c
Cooperage stock, Pittsburgh	2.20c
Do, Chicago	2.30c
Cold rolled strip, hard coils, 16 inches and under by 0.100-inch and heavier, base Pitts., Cleve, (3 ton and over)	2.75c
Worcester, Mass. (3 tons and over)	2.90c to 3.00c

ALLOY STEEL

Hot Rolled
F.o.b. Mills
Alloy Quality Bar Base is 2.65c

S.A.E. Series Number	Alloy differential	Net 100 lb. bars
2000	0.25	$2.90
2100	0.55	3.20
2300	1.50	4.15
2500	2.25	4.90
3100	0.55	3.20
3200	1.35	4.00
3300	3.80	6.45
3400	3.20	5.85
4100 0.15-0.25 Mo.	0.50	3.15
4100 0.25-0.40 Mo.	0.70	3.35
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.70
5100 0.60-0.90 Cr.	0.35	3.00
5100 0.80-1.10 Cr.	0.45	3.10
5100 Chrome Spring	0.20	2.85
6100 Bars	1.20	3.85
6100 Spring Steel	0.95	3.60
Chrome Nickel Vanadium	1.50	4.15
Carbon Vanadium	0.95	3.60
9250 (flats)	0.25	2.90
9250 (rounds, squares)	0.50	3.15

Hot rolled alloy billets 4 x 4-inch and over take same price per gross ton as same specification alloys bars per net ton. Sizes under 4 x 4 to 2½ in. x 2½ in. inclusive sold on bar basis plus steel bar card extras for size. Sizes under 2½ in. x 2½ in. take bar price on net ton basis.

COLD FINISHED STEEL

Bars, drawn or rolled, Pitts., Chi., Buffalo, and Cleve. c.l.	2.20c
Do, delivered, Detroit	2.435c
Shafting (turned, polished) Pittsburgh, Buffalo	2.20c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.55c to 3.00c

WIRE PRODUCTS

F.o.b. Pittsburgh, Cleveland, Ironton base
(Per Pound)

	Trade	Large Jobbers
Bright plain wire, 6 to 9 gage		2.40c
Annealed wire	2.65c	2.55c
Galvanized wire	3.10c	3.00c
Barbed wire, galvanized	3.15c	3.05c
(Per 100-pound keg)		
Wire nails	$2.50	$2.40
Galvanized nails	4.50	4.40
Polished staples	2.95	2.85
Galvanized staples	3.20	3.10
Cement coated nails	2.50	2.40
Wire, delivered Detroit		2.57c
Nails, delivered Detroit	$2.57 to 2.72	

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Pittsburgh-Cleveland-Ironton base on products made there; Duluth $2 higher; Worcester, Mass., Fairfield, Ala., $3 higher.

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

Anderson, Ind., $1 higher. Chicago $2 higher, Duluth, Birmingham $3 higher.

CUT NAILS, CHAIN, PILING

Cut nails, c.l., f.o.b. mills	2.70c to 2.75c
Cut nails, l.c.l. f.o.b. mills	2.80c to 2.85c
Sheet piling, base, Pittsburgh	2.20c
Chain proof BB and BBB, Pitts.	
3/16-in. to ½-in.	33 1/3 and 5 off
9/16-in. to 1½-in.	33 1/3 off

CAST IRON WATER PIPE

Class B Pipe—Per Net Ton

Six-inch and over, Birming'm	$37.00 to 38.00
Four-inch, Birmingham	41.00 to 42.00
Four-inch, Chicago	49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Six-inch and over, New York	37.50 to 39.50
Four-inch, New York	40.00 to 41.00
Standard fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

TIN PLATE; TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.35

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24— 4.00c to 4.10c

*Price subject to quantity differentials.

WASHERS

Wrought, c.l., Pitts. dist.	$6.50 to 6.75 off
Wrought, c.l., Chicago dist.	$6.70 2 to 26.90 off
Lock: to dealers	85-5 off
Lock: to consumers	85 off

RAILS, TRACK MATERIAL

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	$43.00
Relay rails, Pitts., 60 to 90 lb.	$24.00 to 29.00
Light rails, 25 to 45, mills	$36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand. jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	$43.00

BOLTS AND NUTS

Pittsburgh, Cleveland, Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	60 to 70 off
Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.	
Eagle list	60 to 70 off

MACHINE BOLTS

All sizes, cut thread	60 to 70 off
Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.	
Lag screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off
Stove bolts, 75, 20 10 and 5 off in pkgs., 75, 10, 10 and 5 with 2½ off in bulk.	
Tire bolts	60-5 off

Nuts

Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-5 off
Upset 1 in. diam. and smaller	5 off

SQUARE HEAD SET SCREWS

Milled	80-5 off
Upset 1 in. diam. and smaller	80-10-5 off

RIVETS

Struc., c.l., Pitts.-Cleve.	3.10c
Structural, c.l. Chicago	3.20c
**7/16-inch and smaller, Pitts.	70 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Raw Materials and Semifinished Products

SEMIFINISHED STEEL

Prices Per Gross Ton

BILLETS AND BLOOMS
4 x 4-inch base

Pittsburgh, open-hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	35.00
Cleveland	35.00
Philadelphia	40.30
Chicago	37.00
Forging, Chicago	42.00
Forging, Pittsburgh	40.00
Forging, Philadelphia	45.30

SHEET BARS

Pittsburgh	$35.00
Youngstown	35.00
Cleveland	35.00
Chicago	37.00

SLABS

Pitts., Young.	$35.00
Cleveland	35.00

WIRE RODS

Pittsburgh, Cleveland	$40.00
Chicago	43.00
Youngstown	40.00 to 42.00

SKELP

All grades, Pittsburgh	1.90c

IRON ORE

LAKE SUPERIOR ORE
Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%	$4.80
Mesabi bessemer, 51½%	4.65
Old range nonbessemer, 51½%	4.65
Mesabi nonbessemer, 51½%	4.50
High phosphorus, 51½%	4.40

EASTERN LOCAL ORES
Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%	9.00 to 10.00
Copper-free low phos. 58-65%	nominal

FOREIGN ORE
Cents per units, alongside docks
Atlantic ports

Foreign manganiferous ore, 45-55% iron, 10-12% manganese	12.00 to 12.50
North African low phosphorus	12.50
Swedish basic, 65%	10.50
Swedish low phosphorus	12.00
Spanish and North African basic, 50 to 60 per cent	11.50 to 12.00
Newfoundland foundry, 55%	nominal
Tungsten future, short ton unit, duty paid	15.35 to 15.50
Chrome, 48-50%, c.i.f. long ton	24.00 to 25.00

MANGANESE ORE

Prices, not including duty, are cents per unit.

Brasilian (47-48 per cent)	30 to 32 cents
Indian	30 to 34 cents
Caucasian, (50-55 per cent)	32 to 34 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, import duty paid east, tide., gross ton	$21.00

REFRACTORIES

FIRE CLAY BRICK
Per 1000 f.o.b. works
First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	42.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK
Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE
Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK
Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

Pig Iron

Consumers Keep Buying in Check Though Taking in Most Contract Iron—Producers to Curtail Output if Demand Slips Far

LAKE furnaces report shipments to all classes of users save automotive good, though there is expectation that the rate will decline later in the month. Spot business dominates at Chicago, with some restlessness as to the price situation there. It is reported that southern furnaces will quote $13 to $13.50, Birmingham, for early 1930 business in the greater Chicago district. Buffalo producers believe southern sales in the East have been heavier than generally believed, and their own sales may be curtailed. Further first quarter inquiry has developed at St. Louis. The market at Pittsburgh is dull, and a Sharpsville, Pa., stack is to go out this week. Pig iron prices generally are unchanged this week, with little business to test them.

PITTSBURGH, Nov. 12.—Pig iron is dull and weak. Sizable lots continue lacking and orders involving a few car loads at a time are fewer. Consumers whose stocks have been low for a number of months are now even more cautious in placing forward tonnage. Current buying generally is for immediate requirements. Incoming tonnage fails to equal production or shipments, although old orders provide furnaces with a fair movement and backlogs are declining steadily. Shenango Furnace Co. is shutting down one of its two Sharpsville, Pa., stacks this week. Prices lack strength and although occasional reports of shading are heard, lack of substantial tonnages in new business gives producers little incentive for cutting quotations. Market prices are $18.50, valley, for No. 2 foundry and basic and $19, valley for bessemer and malleable.

Boston, Nov. 12.—In the past week about 5000 tons of pig iron was sold, of which Mystic Iron Works took 3000 tons. All of this was for New England delivery and $20, furnace, on long haul freight rates was procured. Otherwise furnace interests report mainly carlot sales.

New York, Nov. 12.—While the melt appears to be showing little recession, pig iron buying the past week has been the lightest in some time. It is estimated that sales have aggregated 5000 to 6000 tons, mostly small lots. One of the largest sales involves 500 tons of No. 2 plain and No. 1X foundry iron for a locomotive builder. Prices generally are easy at recent levels. Southern iron is easy at $19 to $19.50, delivered New York docks. Two hundred fifty tons of charcoal iron were included in the week's sales, going at the unchanged price of $24, base. Southern New England machine tool foundries are operating at around 85 per cent and jobbing foundries at 80, a slight reduction from a fortnight ago.

Buffalo, Nov. 12.—Pig iron sales and inquiry are small in this district and the East. Buffalo furnaces are refusing to meet southern competition in the seaboard district, they report. It is believed by some sellers here that the volume of southern iron sold recently in eastern territory is much larger than reported and that because of this northern producers will get little new tonnage the next 30 days. Shipments are reported good and little iron is being piled. Unfilled tonnage is diminishing rapidly. A big fleet of pig iron went forward to seaboard this week.

Pig Iron Prices

Per Gross Ton	
Bessemer, valley furnace	$19.00
Bessemer, del. Pittsburgh	20.76
Basic, valley furnace	18.50
Basic, Pitts., dist. fur.	19.00
*Basic, del., Pitts.	19.63 to 20.13
Basic del., eastern Pa.	19.75 to 20.25
Basic, Buffalo furnace	18.50
Basic, del., eastern Pa.	19.85 to 20.76
Malleable, valley furnace	19.00
Malleable, Pitts., dist. fur.	19.50
*Malleable, del. Pittsburgh	20.13 to 20.63
Malleable, Cleve. fur. for local del.	19.00
Malleable, Chicago furnace	20.00
Malleable, Buffalo furnace	20.00
Malleable, del. eastern Pa.	21.76 to 22.90
Malleable, Granite City fur.	20.00
No. 1 foundry, Chicago furnace	20.50
No. 1X, Eastern del., Phila.	22.76
No. 1X, Buffalo furnace	21.00
No. 2 foundry valley furnace	18.50
No. 2 fdy., Pitts. dist. fur.	19.00
*No. 2 foundry, del. Pittsburgh	18.63 to 20.13
No. 2 plain, Buffalo furnace	19.50
No. 2 foundry, Chicago furnace	20.00
No. 2 fdy., Cleve. fur. for local del.	19.00
No. 2 fdy., Granite City	20.00
No. 2 plain, del., Phila.	21.76
No. 2 plain, Virginia furnace	17.75
No. 2 plain, Buffalo, del. Boston	21.28 to 21.91
No. 2 plain, N. J., tidewater	20.78 to 21.78
No, 2 Alabama, Bir. base	14.00 to 14.50
No. 2 Tenn., Birmingham base	14.00 to 14.50
No. 2 Tenn., del. Cincinnati	17.69 to 18.19
No. 2 Alabama, del. Cincinnati	17.69 to 18.19
No. 2 Alabama, del., Cleveland	20.51 to 21.01
No. 2 Alabama, del. Chicago	19.01 to 20.01
No. 2 Alabama, del. St. Louis	18.42 to 18.92
No. 2, Ala., Phila., dock dely.	19.25 to 19.75
No. 2 Ala., Balt., dock dely.	19.00 to 19.50
No. 2 Ala., N. Y., dock dely.	19.00 to 19.50
No. 2 Ala., Boston, dock dely.	20.75
No. 2X, east., N. J., tidewater	21.28 to 22.28
No. 2X, eastern, del. Phila.	22.26
No. 2X, foundry, Buffalo furnace	20.00
No. 2X, Buffalo, del. Boston	22.28 to 22.78
No. 2X, Virginia furnace	18.25
Gray forge, Pitts. dist. fur.	18.50
*Gray forge, del. Pittsburg	19.13 to 19.63
Low phos., standard, valley	27.00
Low phos., standard, Phila.	24.76
Low phos., copper bearing fur.	23.00 to 24.00
Charcoal, Superior, del., Chicago	27.04

*Freight from Pittsburgh district furnace to points in Pittsburgh district 63c, 76c and $1.13 per ton.

CANADIAN PRICES

No. 1 foundry, del. Toronto	$23.60
No. 1 foundry, del. Montreal	25.00
No. 2 foundry, del. Toronto	23.10
No. 2 foundry, del. Montreal	24.50
Malleable, del. Toronto	23.60
Malleable, del. Montreal	25.00
Basic, del. Montreal	23.50

Silvery iron Jackson county, O., furnaces in per cents: 5—$22; 6—$23; 7—$24; 8—$25; 9—$26; 10—$28. 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$41; 16—$43.50; 17—$46.50.

Youngstown, O., Nov. 12.—Quietness prevails in pig iron. A recent requirement of a small tonnage of No. 2 foundry developed a quotation of $18.50, valley. The tonnage still is pending. Other grades are firm with bessemer and malleable $19 and basic $18.50, valley.

Cleveland, Nov. 12.—Pig iron sales the past week totaled 8700 tons, compared with 10,600 tons the week preceding. Shipments by most lake producers thus far in November about equal or slightly exceed the comparable period for October despite the defection of automotive foundries, but a declining tendency is evident and the showing of the last half of November may not be so good. Some small releases for Chrysler and Chevrolet work have been made, but in general the automotive melt is greatly depressed. Other users, especially radiator makers, are taking in considerable iron. Prices are unchanged. One producer intends scaling production to consumption and will blow out furnaces rather than pile iron.

Detroit, Nov. 12.—Pig iron consumers other than those in or dependent upon the automotive industry are taking in seasonally high tonnages, but the automotive retrenchment is sharply felt. Except where melters have laid in stock by water shipments, consumers' iron inventories are negligible. Automotive melt is the lowest since January and prospects of resumption on a good scale the remainder of the year are slight. Malleable and No. 2 foundry iron continue $20, base, Detroit furnace.

Chicago, Nov. 12.—Spot orders in moderately heavy volume chiefly support sales activity in northern pig iron. Shipping orders show no appreciable decline from last month, except for malleable grades to the makers of automotive castings. Little pig iron has been left over at the docks from the lake shipments during the season just closed for disposal in this market. It is understood one seller of southern iron will accept business at $13, base, Alabama furnace, but other sellers are naming a minimum of $13.50. All six of the merchant furnaces in Chicago territory are active, including two Federal and three Iroquois, at South Chicago, and the Zenith furnace, at

(*Concluded on Page* 1266)

Coke

Dull Market a Factor in Easier Price Situation—Mild Weather Hurts Heating Grade Sales

ALTHOUGH $2.65 to $2.75 still represents the beehive furnace grade, the slippage toward the lower figure is unmistakable. Foundry coke now is quotable at $3.50 to $4.85, a decline of 25 cents at the bottom. Steelworks ovens in the Connellsville district are producing at the lowest rate of the year. Southern ovens are shipping considerable coke out of their district.

Pittsburgh, Nov. 12.—Beehive coke continues dull with prices easy. Furnace coke purchases are entirely in small lots. The $2.65 to $2.75 market prices are settling toward the lower figure. Little activity is shown in ordinary grades of foundry which are weak. Prices of premium grades of foundry fuel are steady, but the quality formerly commanding $3.75 is selling down to $3.50. Heating coke demand is slow to expand, due largely to mild weather. Surplus coke supplies are expanding but production of merchant ovens is steady. Output of steelworks ovens is off further to the year's lowest level.

Production of coke in the Connellsville region for the week ended Nov. 2 was 56,670 tons, compared with 56,750 tons the preceding week and 67,450 tons in the same week a year ago.

New York, Nov. 12.—Beehive coke sellers are expected to open books shortly for the first half. This action was recently taken by the by-product coke producers, who have closed numerous contracts calling for prices to be based on the going market at time of delivery. Current prices generally are unchanged.

Boston, Nov. 12.—It is figured that practically 100 per cent of coke requirements for foundries for the first half of 1930 already has been booked. Placing of orders is earlier than anticipated. Shipments are only for immediate needs.

Cincinnati, Nov. 12.—By-product foundry coke is moving at a slower rate. Specifications will compare unfavorably with the October demand, according to present indications. Domestic grades are dull.

St. Louis, Nov. 12.—While new buying of metallurgical coke is quiet and mainly for prompt delivery, shipments are holding up better than seasonal average. By-product interests report virtually no holdup requests. There has been some buying and inquiry from western and southwestern users.

Birmingham, Ala., Nov. 12.—Continued activity is noted in the coke trade, independent producers shipping steadily. Few by-product coke works of the district are out of commission. Considerable foundry coke is moving to points outside of southern territory. Foundry coke continues $5.

Coke Prices

Prices per Net Ton

Beehive Ovens	
Connellsville furnace	$2.65 to 2.75
Connellsville foundry	3.50 to 4.85
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25
By-Product Foundry	
Newark, N. J., del.	$9.00 to 9.40
Chicago ovens	8.00
New England del.	11.00
St. Louis del.	9.00
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ov., Connell. basis	6.50
Portsmouth, O. ov., Connell. basis	6.50
Buffalo ovens	8.75
Detroit ovens	9.00
Philadelphia, del.	9.00

Ferroalloys

Spiegeleisen Contracts Renewed—Ferromanganese Specifications Off

New York, Nov. 12.—First half contracts on spiegeleisen are being renewed at prevailing prices. Domestic spiegeleisen in carload lots, 19 to 21 per cent, is holding at $34, furnace. English spiegeleisen, 22 to 24 per cent content, is available at $34, duty paid. Ferromanganese continues at $105, duty paid, with new contracting not likely to set in much before Dec. 1.

Pittsburgh, Nov. 12.—Ferroalloy specifications show a more substantial decline this month coincident with a further decline in steelmaking operations. The movement of ferromanganese and spiegeleisen is seasonally active but off markedly from the rates of preceding months. Few sales are noted in the spot market, but prices remain steady at $109.79, delivered Pittsburgh, and $34, respectively. Contracting for the first half of 1930 has not started as yet but there are no intimations of a change from current quotations for that period. Prices of other ferroalloys are unchanged. Tungsten continues steady but quiet.

Philadelphia, Nov. 12.—A large steel castings company in this district is inquiring for 500 to 750 tons of spiegeleisen.

Bolts, Nuts, Rivets

Demand Steady from All But Automotive Users

NUT AND BOLT PRICES, PAGE 1262

Pittsburgh, Nov. 12.—Demand for bolts, nuts and rivets is steady but slower than during preceding months. Producers have been only moderately affected by the recession in automotive operations, and requirements of miscellaneous users have been seasonally active. Jobbers are more cautious regarding stock accumulations. Operations are off slightly at 60 to 65 per cent. Prices remain steady. Bolts and nuts hold at 60 to 70 off. Large rivets are 3.10c, Pittsburgh, on most business, with 2.90c applying in fewer instances.

New York, Nov. 12.—Local buying of bolts, nuts and rivets remains sluggish, with prices unchanged. Eastern mills are operating at about 60 per cent.

Cleveland, Nov. 12.—Activity in nuts, bolts and rivets is limited to prompt needs. Prices are firm and unchanged, however. No inquiries are out for first quarter.

Chicago, Nov. 12.—Specifications for bolts, nuts and rivets are approximately equal to those of a year ago, but orders are of a short range nature. Machine and carriage bolts remain at 60 to 70 off list, while structural rivets in carload lots are 3.20c, Chicago.

Engineers Study Bills Before Congress

Members of the administrative board of the American Engineering council met at Hotel Mayflower, Washington, Oct. 24-25, for the purpose of considering and expressing opinion on a number of bills and resolutions now pending before congress. The board voted recommendations on over 30 legislative steps, including a bill advocating changes in the government patent office; a bill authorizing the reconstruction in 1932 of the old Potomac canal in Washington, originally constructed by George Washington; and a bill providing for the construction of an ocean-going waterway from the Great Lakes to the Atlantic by way of the St. Lawrence river and the Welland canal.

Ferroalloy Prices

(In dollars, except ferrochrome)

Ferromanganese, 78 to 82 per cent tidewater, duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent, domestic furnace, spot†	34.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do., less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.45
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producer's plant, net ton	160.00
Do., one ton to carload	170.00
Ferrophosphorus, per ton, carload 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

†Carloads. Differentials apply to large quantities.

*These prices contract, spot $5 higher.

Scrap

Decline Continues as Melters Buy Only Current Requirements—Production Not Burdensome

PRICES below what seemed a bottom have been developed as the market continues to sag. Declines of 25 to 50 cents per ton are being registered. Production is in normal volume or less, which saves further sharp decline. Many melters have embargoes in effect, which complicate the situation.

Chicago, Nov. 12.—Both buyers and sellers of iron and steel scrap are watchful. Prices again have dropped 25 to 50 cents, led by a decline of 25 cents in melting steel, in a market virtually devoid of tonnage buying. Heavy melting steel is being quoted at $13.25 to $13.75, the lowest since October, 1928, on sales of relatively small tonnages at $13.75. Dealers are able to buy melting steel against outstanding orders at $13.25. Not only open-hearth scrap but also blast furnace, rolling mill, and electric furnace grades have slumped. Cupola scrap, such as machinery and railroad cast, is holding its own in contrast to months of weakness. Cast borings have dropped another 25 cents to a low of $9.25, with no fresh bookings by sellers for some time. The market has been unsettled by restrictions against shipments by three steelworks consumers and several foundry melters. Nevertheless, releases of scrap by industrial and railroad producers are in normal volume, and the melt shows increase for some grades.

Boston, Nov. 12.—Prices of iron and steel scrap are weak. Mills are or-

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated.

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	10.50 to 13.50
Boston, dealers	10.00 to 10.25
Boston, No. 2	10.50 to 11.00
Buffalo, No. 1	15.00 to 16.50
Buffalo, No. 2	13.25 to 13.75
Chicago	13.25 to 13.75
Cincinnati, deal.	12.75 to 13.25
Cleveland, No. 1	14.25 to 14.75
Cleveland, No. 2	13.75 to 14.25
Detroit, No. 1 deal.	12.50 to 13.00
Detroit, No. 2 deal.	11.00 to 11.50
East Pa., del. mill	15.50
N. Y., deal. R. R.	11.50 to 11.85
N. Y., deal. yd.	8.00 to 8.25
Pittsburgh, No. 1	16.50 to 17.00
St. Louis, No. 1	13.00 to 13.50
Valleys, No. 1	16.00 to 16.50

COMPRESSED SHEETS

Buffalo (dealers)	13.25 to 13.75
Chicago	11.50 to 12.00
Cleveland	14.25 to 14.75
Detroit, dealers	12.25 to 12.50
E. Pa. new mat.	14.50 to 15.00
Pittsburgh	16.25 to 16.75
Valleys	16.00 to 16.50

BUNDLED SHEETS

Buffalo	10.50 to 10.75
Cincinnati, deal.	10.75 to 11.25
Cleveland	12.50 to 13.00
Eastern Pa.	11.50 to 12.00
Pittsburgh	15.50 to 16.00
St. Louis	9.00 to 9.50

SHEET CLIPPINGS LOOSE

Chicago	8.50 to 9.00
Cincinnati	8.50 to 9.00
Detroit, dealers	9.00 to 9.50
St. Louis	9.00 to 9.50

STEEL RAILS, SHORT

Birmingham	14.00 to 15.00
Boston	9.00 to 10.25
Buffalo	18.00 to 18.50
Chicago (3 feet)	16.25 to 16.75
Chicago, 2 ft. and under	18.00 to 18.50
Cincinnati, deal.	18.25 to 18.75
Detroit, dealers	17.00 to 17.50
Pittsburgh (3 ft.)	19.50 to 20.00
Pittsburgh, 2 feet and under	20.50 to 21.00
St. Louis	18.00 to 18.50

STOVE PLATE

Birmingham	11.00 to 12.00
Boston consumers	11.00 to 11.50
Buffalo	12.50 to 12.75
Chicago, net	10.50 to 11.00
Cinn., deal., net	8.75 to 9.25
Detroit, net, deal.	9.00 to 9.50
Eastern Pa.	12.00
N. Y., deal., mill	8.00 to 8.25
St. Louis	12.00 to 12.50

COUPLERS, SPRINGS

Buffalo	17.00 to 17.50
Chicago	16.00 to 16.50
Eastern Pa.	21.00
Pittsburgh	20.00 to 20.50
St. Louis	15.00 to 15.50

ANGLE BARS—STEEL

Chicago	16.00 to 16.50
St. Louis	14.50 to 15.00

LOW PHOSPHORUS

Buffalo, billets and bloom crops	18.50 to 18.75
Cleve. billet and bloom crops	18.00 to 18.50
Eastern Pa.	21.00 to 22.00
Pitts. billet and bloom crops	22.00 to 22.50
Pitts. sheet bar crops	21.50 to 22.00

FROGS, SWITCHES, GUARDS

Chicago	14.00 to 14.50
St. Louis	15.00 to 15.50

SHOVELING STEEL

Chicago	13.25 to 13.75
Cleveland	11.50 to 12.00
St. Louis	13.00 to 13.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.00 to 12.00
Boston, dealers	10.00 to 10.50
Buffalo, No. 1	13.00 to 13.50
Buffalo, No. 2	15.00 to 16.00
Chicago, No. 1	14.00 to 14.55
Chicago, No. 2	13.25 to 13.75
Cincinnati, No. 2	12.75 to 13.25
Eastern Pa.	16.00 to 16.50
N. Y., No. 1 deal.	12.00 to 12.50
Pittsburgh, No. 2	17.00 to 17.50
St. Louis, No. 1	13.00 to 13.50
St. Louis, No. 2	13.00 to 13.50

SPECIFICATION PIPE

Boston	9.25 to 9.50
Eastern Pa.	14.50
New York, deal.	9.75

BUSHELING

Buffalo, No. 1	13.25 to 13.75
Chicago, No. 1	11.50 to 12.00
Cinn., No. 1 deal.	10.50 to 11.00
Cinn., No. 2	6.50 to 7.00
Cleveland, No. 1	13.75 to 14.25
Cleveland, No. 2	10.00 to 10.50
Detroit, No. 1 new deal	11.00 to 11.50
St. Louis, No. 1	9.75 to 10.25
Valleys, new No. 1	15.00 to 15.50

MACHINE SHOP TURNINGS

Birmingham	7.00 to 8.00
Boston	6.00 to 6.25
Buffalo	8.75 to 9.25
Chicago	7.00 to 7.50
Cincinnati, deal.	8.00 to 8.50
Cleveland	10.00 to 10.25
Detroit	8.00 to 8.25
Eastern Pa.	12.00
New York, deal.	7.00 to 7.50
Pittsburgh	11.00 to 12.00
St. Louis	7.25 to 7.75
Valleys	12.00 to 12.50

MIXED BORINGS, TURNINGS

For blast furnace use

Boston, dealers	6.00 to 6.50
Buffalo	11.00 to 11.50
Cincinnati, deal.	8.25 to 9.25
Cleveland	10.25 to 10.75
Detroit, dealers	8.75 to 9.25
Eastern Pa.	11.00
New York, deal.	7.00 to 7.50
Pittsburgh	11.50 to 12.00

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	7.00 to 8.00
Boston, chem.	9.00 to 9.50
Boston, dealers	6.75 to 7.00
Buffalo	11.00 to 11.50
Chicago	9.25 to 9.75
Cincinnati, deal.	8.75 to 9.25
Cleveland	10.25 to 10.75
Detroit, dealers	8.75 to 9.25
Eastern Pa.	11.50
Eastern Pa., chem.	14.50
New York, deal.	7.00 to 7.50
Pittsburgh	11.50 to 12.00
St. Louis	9.25 to 9.75

PIPE AND FLUES

Cincinnati, deal.	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	11.00 to 11.50
Chicago, net	11.75 to 12.25
Cincinnati	9.50 to 10.00
Eastern Pa.	12.00
New York, deal.	8.50 to 9.00
St. Louis	11.50 to 12.00

FORGE FLASHINGS

Boston, dealers	9.00 to 9.50
Buffalo	13.50 to 14.00
Cleve. over 10 in.	13.50 to 14.00
Detroit	12.00 to 12.50

FORGE SCRAP

Boston, dealers	8.50 to 9.00
Chicago	18.00 to 18.50
Eastern Pa.	14.00

ARCH BARS AND TRANSOMS

Chicago, net	17.50 to 18.00
St. Louis	21.50 to 22.00

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	14.00 to 14.50
Chicago steelworks	11.50 to 12.00
Cleveland	14.00 to 14.50
Eastern Pa.	15.00
Pittsburgh	15.50 to 16.00
St. Louis	10.00 to 10.50

STEEL CAR AXLES

Birmingham	17.00 to 18.00
Boston, ship point	17.00 to 17.50
Buffalo	17.50 to 18.00
Chicago	17.90 to 18.50
Eastern Pa.	23.00 to 23.50
Pittsburgh	21.00 to 22.00
St. Louis	19.00 to 19.50

SHAFTING

Boston, ship point	14.00 to 14.25
Chicago	17.35 to 17.90
Eastern Pa.	19.50
New York, deal.	14.00 to 14.50
St. Louis	17.50 to 18.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	11.50 to 12.50
Boston, iron	14.00 to 14.50
Buffalo, iron	13.00 to 13.50
Buffalo, steel	17.50 to 18.00
Chicago, iron	13.75 to 14.25
Chi., rolled steel	17.75 to 18.25
Cincinnati	12.50 to 13.00
N. Y., iron, deal.	12.00 to 12.50
Pittsburg, iron	15.00 to 15.50
Pittsburgh, steel	20.00 to 20.50
St. Louis, iron	14.00 to 14.50
St. Louis, steel	16.50 to 17.00

No. 1 CAST SCRAP

Birmingham, cup.	12.50 to 13.50
Buffalo	15.25 to 15.75
Boston, textile	14.00 to 14.50
Chicago, mach.	15.65 to 16.25
Chicago, railroad	14.50 to 15.10
Chicago, agri.	13.45 to 14.00
Cincinnati, mach. cupolas, gross	18.25 to 18.75
Cleveland, cupola	15.75 to 16.25
Detroit, net, deal.	12.00 to 12.50
East Pa., cupola	16.00
N. Y. cup. deal.	12.50 to 13.00
N. Y., del. local foundries	17.00
Pittsburgh, cupola	15.00 to 16.00
San Fran., del.	13.50 to 14.00
Seattle	14.50 to 14.75
St. L. No. 1 mach.	15.25 to 15.75
St. Louis, No. 1	14.50 to 15.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	11.00 to 11.50
Cleve., breakable	12.50 to 12.75
Detroit, auto, net dealers	12.00 to 13.00
Detroit, break. deal	9.50
Eastern Pa.	14.00 to 14.50
New York, deal.	11.00 to 11.50
Pittsburgh	11.00 to 12.00

MALLEABLE

Boston, railroad	18.50 to 19.00
Buffalo	17.75 to 18.25
Chicago, agri.	14.00 to 14.50
Chicago, railroad	16.00 to 16.50
Cinn., R. R., deal.	15.25 to 15.75
Cinn., agri., deal.	14.25 to 14.75
Cleveland, rail	18.00 to 18.50
Detroit auto deal.	14.50 to 15.00
St. Louis	14.50 to 15.00

Miscellaneous Scrap

RAILS FOR ROLLING

5 feet and over

Birmingham	13.50 to 14.50
Boston	11.50 to 12.00
Buffalo	15.00 to 15.50
Chicago	15.50 to 16.00
Eastern Pa.	16.50 to 17.00
New York	12.75 to 13.25
St. Louis	15.25 to 15.75

LOCOMOTIVE TIRES

Chicago, cut	17.50 to 18.00
St. Louis, No. 1	15.00 to 15.50

LOW PHOS. PUNCHINGS

Chicago	15.50 to 16.00
Pittsburgh	19.50 to 20.00

dering practically nothing, and owners of scrap appear willing to hold rather than sell at existing prices.

New York, Nov. 12.—Scrap dealers' buying prices here have undergone the most sweeping revision in considerable time, seven grades being reduced 25 to 50 cents a ton. These include mixed borings and turnings, clean cast borings, turnings, grate bars, specification pipe, and No. 1 railroad steel. Reduction in this latter grade follows a decline of 50 cents a ton at Bethlehem, Pa., on approximately 15,000 tons. Dealers now offer to buy railroad steel at $11.50 to $11.85, New York, the outside figure being equivalent to $14.50, delivered, Bethlehem. Reduction in skeleton steel is due chiefly to a half dollar revision at Harrisburg, Pa., and in specification pipe to a revision on scrap for Lebanon, Pa., dealers now paying $9.75, New York. Borings have been reduced on shipments to Reading and turnings on deliveries to Phoenixville and Harrisburg. A Claymont, Del., consumer is understood to be actively figuring on a large tonnage of No. 1 melting steel.

Philadelphia, Nov. 12.—Slight weakening in grate bars, reducing the price about 50 cents, is the only change in a quiet and featureless iron and steel scrap market.

Buffalo, Nov. 12.—There have been no new purchases of heavy melting steel. Dealers offer $14.50 for No. 1 for Bethlehem and $13 for No. 2. A large melter continues his embargo on all scrap. This embargo has now been in effect nearly a month.

Pittsburgh, Nov. 12.—Heavy melting steel is quoted 25 cents lower at $16.50 to $17, but is weak at that range. The only recent tonnage transactions involved Pennsylvania railroad scrap, which went to several points at prices between these extremities. Mills are not interested while steelmaking operations tend downward. Prices of other grades are generally unchanged. Railroad specialties are scarce, with prices firm.

Youngstown, O., Nov. 12.—In the absence of sales, current scrap prices largely are based on sentiment and opinion. In sympathy with prevailing weak conditions and a drop in open-hearth operation, the market is off at least 50 cents except on machine shop turnings.

Cleveland, Nov. 12.—Iron and steel scrap is exceptionally dull. Shipments to steel mills have been cut to a minimum and dealers are buying little. One mill is taking a few cars of strictly No. 1 steel for which brokers have been paying $15. Some machine shop turnings have been purchased at $10. No. 2 steel is reported as low as $13.75. Brokers here report further holdups in the Valleys.

Cincinnati, Nov. 12.—Closing of three railroad lists this week is expected to test the iron and steel scrap market, which suffered another cut of 25 cents in heavy melting steel, No. 2 railroad wrought and some other grades. One interest is holding up shipments of blast furnace scrap.

Detroit, Nov. 12.—Iron and steel scrap prices are weaker, and demand smaller. Prices are irregular, determined chiefly by the occasional orders dealers have to fill. Offerings of scrap by automotive interests has declined sharply, keeping step with shrinking demand. The prospect is for lower prices the rest of the year. Mixed borings and turnings, No. 2 steel, stove plate, busheling and compressed sheets are lower.

St. Louis, Nov. 12.—Trading in iron and steel scrap the past few days has been in unusually small volume, and at a further decline in prices. Present levels are the lowest on the present downward movement, and the most depressed in a number of months.

Birmingham, Ala., Nov. 12.—Except for heavy melting steel and one or two other steel grades, the iron and steel scrap market is quiet. Quotations are nominal.

Toronto, Ont., Nov. 12.—Small tonnage buying is about the only business being done in the Canadian iron and steel scrap markets. No futures contracts were closed during the week and all new business is for immediate delivery. Both iron and steel grades have been affected by slackening business. Prices are unchanged.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	6.00
Turnings	6.50
Heavy melting steel	8.00

TORONTO

Steel axles	15.00
Iron axles	17.00
Heavy melting steel	9.50
Turnings	7.50
No. 1 mach. cast (net)	16.00
Malleable (net)	12.50

Semifinished Steel

Specifications, New Buying Quiet—Use Declines—Prices Untested

SEMIFINISHED STEEL PRICES, PAGE 1262

Pittsburgh, Nov. 12.—All grades of semifinished steel are in a quiet market both as regards specifications and new business. Billets, sheet bars and slabs are affected by restricted operations of sheet, strip and bar mills. Wire rods also have slowed down materially from the rate of preceding months. Lack of new buying prevents current quotations on some products from being tested, but on business now going $35 continues to be quoted on rerolling billets, slabs and sheet bars, and $40 for forging billets and wire rods.

Philadelphia, Nov. 12.—Billet sales continue to involve small and moderate tonnages, with prices firm at $35 and $40, Pittsburgh.

Youngstown, O., Nov. 12.—Dullness marks the semifinished market. Sheet bar shipments have receded this week, reflecting the decline in sheet mill operation. Prices are unchanged at $35, Pittsburgh, for billets, slabs and sheet bars and $40, Pittsburgh, for wire rods.

Pig Iron

(*Concluded from Page* 1263)

Duluth. The market is $20, Chicago furnace, for northern iron with some buyers expecting a reduction.

Cincinnati, Nov. 12.—Included in a total of 3900 tons of foundry pig iron sold the past week was 2000 tons of northern iron, 600 tons going to an Ohio melter, 250 to central Indiana and 300 tons to Chattanooga. No important sales for first quarter have been reported, although there is some quiet inquiry. Only one southern furnace has indicated first quarter prices and this showed no change in present quotation of $14 to $14.50. An inquiry for 1250 tons for a Hamilton, O., melter was current.

St. Louis, Nov. 12.—Buying of pig iron has dropped almost to the vanishing point although the melt holds up well, and shipments since Nov. 1 average close to those in October. Hesitation in purchasing is ascribed to uncertainty relative to the future of business. Prices are firm. The leading local producer is quoting $20, furnace, and all sales made recently have been on a basis of that figure. No southern iron is offered under $14.50, Birmingham. Actual sales the past several days total under 2500 tons, of which St. Louis Gas & Coke Corp. placed 150 tons. An Illinois car builder took 500 tons for prompt shipment, and local jobbing foundries 700 tons. An engine builder took 200.

Birmingham, Ala., Nov. 12.—Spot orders for pig iron are smaller ranging from one to three cars. Much iron still is moving into competitive sections. Unfilled tonnage books show considerable iron yet due. No doubt is expressed that extension of period of low freight rates into eastern and middle-west territories will be granted by the interstate commerce commission after March 31 and solicitation for more business will be made. Few sales are reported for first quarter. Present base is $14 to $14.50 for No. 2 foundry.

Toronto, Ont., Nov. 12.—A slowing up in demand has settled over the Canadian pig iron markets. New business is confined to small spot tonnages.

Philadelphia, Nov. 12.—Baldwin Locomotive Works is inquiring for 750 to 1000 tons of cylinder grade foundry iron. Otherwise pig iron business here is limited to small and moderate tonnages and there is no question that the melt has shrunk considerably. Foundry iron continues at $21, base, eastern Pennsylvania furnace, with occasionally lower to equalize against competition from outside producers. Basic which recently was under negotiation, still is pending. Sale was made of several thousand tons of copper free low phosphorus at $21, base, eastern Pennsylvania furnace.

Bars

Spot Buying Expected to Continue Through Quarter—Production at Fair Rate

THOUGH tonnage buying is lacking, the total of small lots for immediate use is sufficient to keep mills active at a good rate. Backlogs have been worked off so that quick delivery is possible in most sections, though some delay is met in popular sizes. At the new level prices are holding steadily and no further concessions appear imminent.

BAR PRICES, PAGE 1261

Chicago, Nov. 12.—While bar mill orders lack large tonnages, specifications are made up of carload and small-lot requirements from a broad group of buyers. Consumer inventories are light, but buyers seem averse to ordering for the future. Bar mill operations are holding close to 80 per cent but deliveries are easier and sales have declined from recent weeks. Specifications are close to the average weekly rates this year. Cold finished orders have dropped off sharply because of light automotive tonnage, while farm implement buying is holding its own. Steel for car building is growing in volume. Soft steel bars are 2.00c to 2.05c, Chicago.

New York, Nov. 12.—Steel bars are 1.90c, Pittsburgh, with demand moderate and deliveries ranging three to four weeks on the general run of business.

Pittsburgh, Nov. 12.—Specifications for hot-rolled merchant bars show little change for the week but total activity remains light. Although the market has settled to 1.90c, Pittsburgh, for small lots nothing below this figure is heard on larger tonnages.

Youngstown, O., Nov. 12.—Merchant bar demand is light. Mills largely are scheduled on specifications issued against time contracts. The price of soft steel bars is unchanged at 1.90c, Pittsburgh.

Cleveland, Nov. 12.—Merchant steel bar demand is slowly improving. Buyers take only necessities and this is expected to prevail until first quarter contracts are made. Outside mills continue to quote 1.90c, Cleveland. Three to four week deliveries usually prevail, although in some certain cases where material can be worked into current rollings, better dates are available.

Detroit, Nov. 12.—Bar tonnage of all classifications moving into this territory is the smallest of the year. Automotive consumers generally have suspended releases pending a clearer determination of general business conditions. Stocks in users' hands will not average over ten days, assuring immediate business for mills when assembly improves. Pittsburgh district mills quote 1.90c to 1.95c, base, Pittsburgh, the latter applying on small lots of soft steel bars only. Cleveland mills are not strong at 1.90c, base, Cleveland, but apparently cater to few buyers. Alloy steel bars are 2.65c, base, mill. Stainless steel bars, of the 18-8 classification, are 28.00c, base, Pittsburgh.

Philadelphia, Nov. 12.—While steel bar demand is off from a week ago, it continues good from jobbers, railroads, railroad equipment makers, spring manufacturers and cold drawers. Prices continue firm at 1.90c, base, Pittsburgh.

The direct process of extracting iron was practised in the French Pyrenees as early as 1293. The product was not homogeneous.

Do Not Believe Steel Merger Imminent

Cleveland, Nov. 12.—Reports from New York that the proposed merger of Middle West independent steel producers is at hand do not find general acceptance here. While progress has been made in the acquisition of the Donner Steel Co. and the Interstate Iron & Steel Co. by the Otis-Eaton-Mather group, and the addition of two steel executives to the staff of this group, it is thought that the recent stock market disturbance will have a tendency to delay the matter. At least, nothing is regarded as imminent in the next few days.

Eastern reports now link the Bethlehem Steel Co. with the Middle West independents. This possibility was brought out into the open by IRON TRADE REVIEW in its issue of Oct. 3.

Van Sicklen Corp., subsidiary of Allied Motor Industries Inc., has bought the capital stock of Lorraine Corp., manufacturer of auto spotlights.

Plates

Fair Buying Fails to Equal Shipments—Car Building Is Sustaining Factor in Quiet Market

SHIPS, cars and locomotives under contract with builders are giving the steel plate market most of its present activity. Car builders will be taking tonnage for some time as their contracts are worked out. Mills are able to make reasonably quick deliveries in most cases. Inquiry for 5000 tons of tank plates has appeared at Chicago. Prices show little change.

PLATE PRICES, PAGE 1261

Pittsburgh, Nov. 12.—Incoming plate tonnage is fairly well sustained but fails to equal shipments. Most current business continues to come from builders of freight cars, tanks and line pipe, and fair backlogs remain in freight car work. Unfilled orders of local barge builders are light and although considerable business is in prospect recent awards have been small. The plate market gradually is settling to 1.90c, Pittsburgh, with 1.95c finding little application.

New York, Nov. 12.—Plate prices are easier at 2.00c to 2.05c, Coatesville, but with deliveries still averaging two weeks on both the sheared and universal. Few contracts of size are noted, trading being comprised chiefly of a fair volume of miscellaneous tonnage. Substantial tonnage is in sight for ship, car and locomotive building.

Cleveland, Nov. 12.—Plate inquiry is slightly better and small lot buying has picked up a trifle. Action on larger tonnages is still deferred, although about 750 tons was bought by a Lima, O., locomotive builder from an eastern mill for locomotives for the Pennsylvania railroad. About 250 tons will be bought by the D. Connelly Boiler Co. for a power house job in Michigan. Plates are quoted at 1.90c to 1.95c, Pittsburgh. Prompt deliveries can be had in several directions.

Chicago, Nov. 12.—Through recent declines in plate shipments to large users, operating schedules have become much more flexible and virtually all orders can be filled inside of 30 days. Forward buying is light, as buyers seem inclined to make use of such material as they have at hand or on order from the mills, rather than commit themselves for the future at this time. The outlook is indefinite in the oil fields. About 5000 tons of fresh tank plate inquiry has appeared. Spot buying of plates and orders from car building shops are fairly numerous. Plate mill operations remain at about 80 per cent. The base price for plates continues at 2.00c, Chicago.

Philadelphia, Nov. 12.—Plate demand, while not as good as formerly,

still is active. Eastern mills are able to maintain operations in most cases at around 80 per cent. Price concessions now are more numerous and the market now is 2.00c to 2.05c, base, Coatesville, or 2.10c to 2.15c, delivered Philadelphia.

CONTRACTS PLACED

7000 tons (sheet piling), Bonnett Carre spillway, 20 miles above New Orleans, to Jones & Laughlin Steel Corp.
6000 tons, 60-inch pipe, Newark, N. J., to T. A. Gillespie & Co.
750 tons, for 25 Pennsylvania railroad locomotives awarded Lima Locomotive Works, to Lukens Steel Co.

CONTRACTS PENDING

3000 tons, 60-inch steel pipe, water department, New York, Oakhill Contracting Co., low bidder.
2000 tons, 72-inch steel pipe, Detroit, bids opened Nov. 13.
1500 tons, tank work for Standard Oil Co. of New Jersey, at Philadelphia.
870 tons, Cedar river pipe line No. 2, Seattle. Bids received.
100 tons, 24-inch welded steel pipe line, East Bay Municipal Utility district, Oakland, Calif.; Steel Tank & Pipe Co. low bidder.
Tonnage unstated, 1,500,000-gallon elevated tank for Milwaukee waterworks system. Bids Dec. 1. H. P. Bphman, superintendent of water department.

Steel Fabricators Adopt Trade Practice Code

Biloxi, Miss., Nov. 12.—An important accomplishment affording great possibilities for improvement of conditions surrounding the distribution of structural steel was registered here Armistice day when a trade practice conference conducted under the auspices of the American Institute of Steel Construction adopted a code of trade practice for the steel fabricating and distributing industry. Federal Trade Commissioner W. E. Humphrey, Washington, who presided over the conference, characterized the action as a great step forward for the steel industry and one that will help other industries as well as confer benefits on the public.

Commissioner Humphrey was assisted by George McCorkle, assistant chief, division of trade practice conferences, department of commerce, Washington. More than 150 attended the conference at which the code proposed by the institute's committee was discussed. The code of ethics touches on materials, methods of manufacture and erection, selling below cost, dumping, commercial bribery, defamation of character, price discrimination, and design and bidding.

The code as adopted now goes before the federal trade commission for study and approval. It was submitted by a committee composed of Robert T. Brooks, George A. Just Co., Long Island City, N. Y., chairman; T. J. Foster, National Bridge Works, New York; A. M. Conneen Jr., Hedden Iron Construction Co., Hillside, N. J.; H. E. Detwiler, Anthracite Bridge Co., Scranton, Pa., and R. L. Kift, Lehigh Structural Steel Board of Trade, New York.

Pipe

Coastal Towns Active in Cast Pipe Lettings—Steel Pipe Orders, Inquiries Wane

ATLANTIC and Pacific seaboards report most of cast pipe business let the past week. New York bought 1650 tons in three lots, mostly 20-inch; has about 1000 tons in three lots pending. California awarded 946 tons in three lots; has three inquiries pending, aggregating 970 tons. Other districts note active markets on carloads or less. Steel pipe backlogs reduced and inquiries scarce.

PIPE PRICES, PAGE 1262

New York, Nov. 12.—This city has placed more than 1650 tons in three lots of cast pipe, mostly large sizes. About 1000 tons remains to be awarded, bids on the general contracts being opened this week. Other than this municipal business, little activity is noted in cast iron pipe. A fair volume of scattered carload lots is moving. Prices still are inclined to be weak, especially on attractive tonnages. Foundries still operate around 60 per cent, but do better than that on larger sizes.

Boston, Nov. 12.—Pipe demand is fairly good. State and municipal lettings are expected to be few for the next two months. Various utility interests are sounding out the market for early 1930 needs, but makers are not interested at existing prices. The only pending project involves 100 tons for Chelsea, Mass.

Pittsburgh, Nov. 12.—Aggregate business in tubular products is seasonally heavy but the downward trend in demand continues. Jobbers hold their stocks of merchant pipe as low as possible and seasonal influences also are affecting demand for this material. Little further change is noted in requirements for the oil country and the recent slow demand for mechanical tubing continues. Locomotive and boiler tubing remain active. A fair volume of line pipe business may be closed before the end of the year. Old orders of the latter practically have been completed and mill schedules are declining. Operations average about 65 per cent, with seamless mills more active than welding units.

Cleveland, Nov. 12.—For five or six weeks jobber demand for merchant steel pipe has been fairly steady, although individual purchases are limited in size. Public utility companies are slow to make known their requirements for winter or spring. Republic Iron & Steel Co. now able to furnish electric welded pipe up to 6⅝-inch, will be able to supply up to 16-inch shortly after the first of the year. Pipe mill operations in northern Ohio are averaging 65 to 70 per cent. All tubular goods prices are firm.

Chicago, Nov. 12.—A small volume of carload and less-than-carload orders for iron pressure pipe is being received. Municipal tonnage for immediate requirements is light. Saginaw, Mich., awarded 200 tons of 6 to 24-inch pipe. Bids are being received today by Riverside, Ill., for about 100 tons of 6 and 8-inch pipe. Producers' operations continue at under 50 per cent. Carload prices are being held on the basis of $37 to $38, base, Birmingham.

Birmingham, Ala., Nov. 12.—Few cast pressure pipe specifications are being received. Lettings are not looked for in the near future. Other classes of pipe also are dull. Production, however, has not ceased since backlog orders still are being worked off. Some producers too are accumulating stock in anticipation of active spring requirements.

CONTRACTS PLACED

900 tons, 20-inch cast pipe for Brooklyn, N. Y., to Donaldson Iron Co.
500 tons, 20-inch cast pipe for Borough of Queens, N. Y., to Warren Foundry & Pipe Co.
449 tons, 2 to 8-inch class B, improvement Dana Point, Santa Ana, Calif., to Western Construction Co.
297 tons, 10-inch class B, El Segundo, Calif., to National Cast Iron Pipe Co.
250 tons, 6 to 20-inch, for Borough of Manhattan, to Donaldson Iron Co.
200 tons, 6 and 8-inch class 150, Burbank, Calif., to American Cast Iron Pipe Co.
200 tons, 6 to 24-inch pipe for Saginaw, Mich., awarded through contractor.

CONTRACTS PENDING

600 tons, 6 to 20-inch, mostly 20-inch, for Borough of Queens. Bids opened.
447 tons, 4 to 10-inch class N, Miramonte Park, Los Angeles. Bids Nov. 25.
293 tons, improvement La Mesa Colony, San Diego, Calif. Bids opened.
287 tons, 4 to 10-inch class 150, University of California, Berkeley, Calif. Project abandoned.
230 tons, 4 and 6-inch class C, improvement Coronado avenue, San Diego, Calif. Bids Nov. 25.
200 tons, 60-inch and 100 tons fittings, Department of Water Supply, New York.
150 tons, 6 to 20-inch, mostly 20-inch, for Borough of Manhattan. Bids opened.
100 tons, 6 to 8-inch pipe for Chelsea, Mass. Bids opened Nov. 12.
Tonnage unstated, two miles 31-inch pipe for reservoir, Ohio Water Service Co., Youngstown, O., to be built at Girard, O., along Squaw creek; general contract awarded A. Guthrie Co., Minneapolis.

Scrap Men To Meet

Cleveland, Nov. 12.—The Cleveland-Detroit chapter of the Institute of Scrap Iron & Steel Inc. will have a dinner here Nov. 19 at the Hotel Statler. Morris Speer, president of

the chapter, and Benjamin Schwartz, director general of the institute, will speak.

Tin Plate

January Specifications Coming In—Output Down—Price Not Announced

TIN PLATE PRICES, PAGE 1262

Pittsburgh, Nov. 12.—Specifications are being received for January shipments of tin plate and although these are in good volume they have had little effect yet upon operations. Production is off slightly this week at 60 to 65 per cent and little upturn is expected within the next few weeks after which time production of January tonnage will get under way. Tin plate price for the first half of 1930 has not yet been announced. The current market is $5.35 per 100-pound base box, Pittsburgh.

Iron Ore

Season Shipments Gain But Dock Balance Less

IRON ORE PRICES, PAGE 1262

Cleveland, Nov. 12.—Receipts of iron ore at Lake Erie ports for the season through October totaled 42,627,849 gross tons, compared with 33,343,785 tons a year ago, according to the Lake Superior Iron Ore association. Nevertheless, the dock balance No. 1, at 6,365,342 tons, was slightly lower than a year ago, as the following comparison shows:

Port	Receipts Season	Shipments Season	Dock balance Nov. 1
Buffalo*	4,817,186	308,028	30,454
Erie	1,278,491	1,237,743	112,062
Conneaut	9,017,275	8,439,315	1,959,838
Ashtabula	8,499,590	7,633,385	2,224,951
Fairport	2,238,134	2,004,390	443,105
Cleveland	10,308,844	7,137,959	1,088,557
Lorain	3,576,411	1,870,801	109,244
Huron	1,108,797	1,095,420	364,959
Toledo	1,783,121	1,159,375	32,172
Total	42,627,849	30,886,416	6,365,342
Comparative 1 year ago..	33,343,785	23,526,093	6,472,840

*Includes North Towanda and Port Colborne.

October receipts of ore at other than Lake Erie ports were smaller than a year ago, but the season's movement has been greater. Comparisons follow:

Port	October	Season
Detroit	124,568	858,775
Indiana Harbor	342,381	2,626,899
Gary	657,399	5,260,028
South Chicago*	953,213	7,151,126
Milwaukee	.....	.....
Boyne City	.....	.....
East Jordan	.....	.....
Sault Ste. Marie, Ont.	110,475	667,802
Point Edward, Ont.	79,008	541,202
Total	2,267,044	17,105,832
Comparative 1 year ago....	2,580,050	14,900,813

*Includes shipments to interior furnaces as follows: October—107,497; To Nov. 1—419,018.

Edgewater Steel Co., Pittsburgh, has called a meeting of stockholders, Dec. 27, to approve an increase in common stock from 50,000 share of $100 par value to 200,000 shares of no par value.

Sheets

Demand Slightly Lower as Current Needs Rule—Full Finished Prices Have Weakened

GENERAL consumption of steel sheets has receded slightly and production reflects this in lessened production. Other users have continued buying on a scale to balance much of the automotive lack. Full finished body sheets, last to succumb, have sagged in price in some centers, though resisting in others. The market is generally $2 to $4 under the peak.

SHEET PRICES, PAGE 1261

Pittsburgh, Nov. 12.—Conditions in the sheet market are mixed, with both encouraging and adverse factors. Business is about holding its own although prospects appear poor for resumption of sheet buying by automotive interests before the end of the year. On the other hand, current sheet orders in most cases are for rush shipment, indicating that consumers' stocks are depleted. Backlogs of mills are light on all grades with the exception of blue annealed on which two weeks' works remains. Prices are unchanged, with black sheets 2.75c, Pittsburgh, tin mill black 2.90c to 3.00c, and galvanized 3.50c to consumers although some jobbers continue to receive the $2 preferential. Blue annealed holds generally at 2.35c for 13-gage and 2.20c for 9 and 10-gage. Automobile sheets continue 4.00c despite pressure by buyers.

New York, Nov. 12.—Galvanized sheets now appear at 3.40c to 3.50c, Pittsburgh. Easiness is reflected in blue annealed sheets, with shading under 2.35c, Pittsburgh, in greater evidence. This shading has led to 2.25c in some cases. Black sheets are now 2.70c to 2.75c, Pittsburgh, with the inside figure the more representative.

Buffalo, Nov. 12.—A drop in full finished sheets to 4.265c, Buffalo, is reported. Full finished grades were last to experience the decline which has now carried all varieties down $2 to $4 from top prices of third quarter. New tonnage is coming out slowly and shipments have decreased.

Youngstown, O., Nov. 12.—Sheet producers face a declining market from the standpoint of tonnage. In the face of quiet conditions prices are steady. Blue annealed is holding at 2.35c, black at 2.75c and galvanized at 3.50c, base, Pittsburgh. Full-finished tonnage, which producers expected to have been released by Detroit consumers for December shipment, still is held in abeyance. Metal furniture tonnage, however, is filling the gap and some attractive specifications are supporting rolling schedules. The price is 4.00c, base, Pittsburgh.

Cleveland, Nov. 12.—Except in one or two directions, sheet specifications still lag. Black sheets, available in two to three weeks, continue to sell in 50 to 100-ton lots at 2.75c, Pittsburgh, despite reports of quotations as low as 2.65c. Galvanized are quoted at 3.40c to 3.50c, Pittsburgh. Demand is poor from practically all users, except furnace builders, most of whom buy through jobbers. Metal furniture grades are duller than they have been all year.

Cincinnati, Nov. 12.—Sheet mills are operating at 75 to 80 per cent, with new orders reflecting buying for present needs.

Detroit, Nov. 12.—Sheet releases, with other steel products, have generally been held up. Requirements from auto producers now in operation have been pared sharply. Resumption at many plants on new models has been deferred. Prices generally lack a display of strength, but there is insufficient business to test them. Autobody sheets are almost nominal at 4.00c, base, Pittsburgh, and black at 2.75c.

Chicago, Nov. 12.—Blue annealed sheet backlogs, which have been declining rapidly for several weeks, now are down to about two weeks. Black and galvanized orders can be filled with little delay. Seasonal demand for corrugated galvanized roofing is nearly over. Operations are down to about 75 per cent. Mill quotations are 2.95c to 3.05c for No. 24 black, 3.60c to 3.70c for No. 24 galvanized, and 2.45c for No. 13 blue annealed.

St. Louis, Nov. 12.—Producers of steel sheets report continued satisfactory conditions here. The general manufacturing trade is accounting for liberal tonnages. Galvanized sheets, particularly heavy roofing and siding, are moving south in heavy volume. Blue annealed still is the most active item, with deliveries about as deferred as on the first of the month.

Philadelphia, Nov. 12.—Sheet mills continue in need of business. In instances, production ceased over Armistice day. Backlogs have almost disappeared. An exception to the rule in other sections is a tendency toward an increase in automotive requirements here. Prices hold fairly well on most business, but attractive tonnages elicit concessions. Galvanized continues 3.40c to 3.50c, base, Pittsburgh. Efforts of some buyers to uncover lower than that minimum proved unsuccessful. Black generally is quoted at 2.75c, Pittsburgh, with occasional concessions on attractive business, and on sheets taking high extras around 2.65c, base was quoted on attractive tonnages. Blue annealed is well held at 2.20c and 2.35c, with some shading. Competition from hot strip over 24 inches wide is keener.

Structural Shapes

Structurals Lead Entire Steel Market—Apartments, Hotels, Bridges Active—33,215 Tons Let in 43 Jobs—Prices Easier

SUSTAINED activity in structural shapes, particularly in the East, furnishes the outstanding characteristic of the entire steel market. Apartments, taking up to 2500 tons, are being let in New York. A 3200-ton hotel is up there and one taking 3000 tons is pending in Oklahoma. Chicago reports awards of 3700 and 1500 tons for a school and museum. Bridges occupy a prominent place in the week's news, both East and West. Bridge awards in territory tributary to Chicago, involve 4000 tons. October lettings in metropolitan New York, exclusive of bridges and subways, totaled 85,699 tons, the largest month of the year. November starts out well as far as tonnage is concerned, but prices are easier, especially in eastern markets on attractive tonnages.

STRUCTURAL SHAPE PRICES, PAGE 1261

New York, Nov. 12.—Structural steel contracts in October were the largest of the year, 85,699 tons, according to the New York Structural Steel Board of Trade. This is exclusive of bridges and subway work. Only one other month was larger since the organization of the board, November, 1925, when 112,000 tons were placed and tonnage that month was artificially raised by a ruling against the then prevailing per ton basis of buying. During the same month last year 50,264 tons was let while in September this year the total was 54,119.

Shape bookings thus far in November have held to the high rate of the previous month. Pending business continues heavy. Among the several apartment awards this week over 1000 tons, was one for 2500 going to Levering & Garrigues Co. Mills continue to operate at near capacity. Sustained demand for structural shapes is a feature of the eastern steel market. Fabricating shops continue at a high rate. Prices are reported easy in spots, with 2.145c to 2.195c generally prevailing.

The Survey bureau of the Structural Steel Board of Trade Inc., of New York, during the first nine months figured 265 jobs, involving 151,951 tons. Individual surveys furnished totaled 2150 tons, the cost being $31,243.09.

Boston, Nov. 12.—Approximately 800 tons of structural shapes were awarded for three jobs and about 700 tons are pending, including 350 tons for signal towers for the Boston & Maine railroad. The largest job let involved 370 tons for a draw span for the Congress street bridge here.

Pittsburgh, Nov. 12.—Structural shapes continue seasonally active and although there is a fair volume of pending work, new jobs are smaller. Specifications for plain material are holding well and local fabricators continue busy, although largely on small-lot jobs. Two recent awards in the Cleveland district booked by a local fabricator, involve 1000 tons. The plain shape market generally is 1.90c, Pittsburgh, with 1.95c applied less frequently.

Philadelphia, Nov. 12.—Lower prices are developing in the shape market. Plain standard shapes may now be quoted 1.90c to 1.95c, base, eastern mill, depending on destination. The usual delivered prices, Philadelphia and Baltimore, are 2.01c, base. However, all these levels can be shaded on attractive tonnages. The volume of shape demand continues fair because fabricators as a rule have good order books. While fabricators have work for a considerable period ahead, in some cases stretching out for several months, they need more work for immediate fabrication. Hence low prices are being quoted on quick delivery work up for bids.

Buffalo, Nov. 12.—Structural shape business leads in the present steel market. Sections for the first four floors of the new Buffalo city hall have been delivered to the fabricators. This and other orders are giving shape mills plenty of business, while rail tonnage on district producers' books also is large.

Cleveland, Nov. 12.—Large local projects still are deferred. A Nickel Plate bridge at East Seventy-ninth street, 265 tons, was awarded American Bridge Co. which also was awarded about 700 tons for a building for *Akron Times*, Akron, O. Plans are not yet out for the National Town and Country club, 7000 tons, although excavating is being done. Most fabricating shops have at least three months' work ahead. Buyers want everything quickly, since they want their buildings under cover by the time snow flies. Competition continues keen. Plain material is 1.90c to 1.95c, Pittsburgh, the latter on small quantities.

Chicago, Nov. 12.—Orders from car building plants for light shapes and structural plates to build cars awarded in recent weeks comprised about 50 per cent of the total mill specifications during the week. Structural awards aggregate high in several North Central states tributary to the Chicago district, including about 3500 tons of bridge work. Bridge work comprises one of the active features in the market. Backlogs are unimportant as little forward buying appears. A hotel in Oklahoma City, Okla., took 3000 tons and a school building in Chicago 3700 tons. Four bridge projects in the West averaged about 1000 tons each. The price range continues at 2.00c to 2.05c for plain structural material.

Birmingham, Ala., Nov. 12.—While no appreciable tonnage was awarded the past week, all fabricating shops are busy on contracts previously received. Shops here have erecting forces at work throughout the South.

Awards Compared

	Tons
Awards this week	33,215
Awards last week	40,552
Awards two weeks ago	41,386
Awards this week in 1928	10,916
Average weekly awards, 1928	39,082
Average weekly awards, 1929	41,700
Average weekly awards, Oct.	42,695
Total awards to date, 1928	1,776,733
Total awards to date, 1929	1,918,214

CONTRACTS PLACED

5850 tons, Kings county hospital, Brooklyn, N. Y., to Taylor-Fichter Steel Construction Co.; previously reported as going to Harris Structural Steel Co.

3700 tons, Wendell Phillips high school, Chicago, to unstated fabricator.

3000 tons, superstructure, Hotel Biltmore, Oklahoma City, Okla., to Mississippi Valley Structural Steel Co.

2500 tons, apartment, 895 Park avenue, New York, to Levering & Garrigues Co.

1850 tons, apartment, Third avenue and Seventy-eighth street, New York, to Harris Structural Steel Co.

1800 tons, additions, state hospitals, Dunning, Lincoln and Elgin, Ill., to Mississippi Valley Structural Steel Co.

1800 tons, apartment, Central Park west and 104th street, New York, to Easton Structural Steel Co.

1550 tons, warehouse and showrooms, New York Central railroad, Marble Hill avenue and West 228th street, New York, to McClintic-Marshall Co.

1500 tons, reconstruction Fine Arts building, Jackson park, Chicago, through R. C. Wieboldt & Co., to several fabricators.

1350 tons, plant, Kelsey-Hayes Wheel Co., Detroit, to Whitehead & Kales Co.

1200 tons, highway bridge, Cheyenne, Okla., to Lakeside Bridge & Steel Co.

1000 tons, highway bridge, Sturgeon Bay, Wis., to Wausau Iron Works.

900 tons, apartment, Lexington avenue and Eighth street, New York, to Easton Structural Steel Co.

900 tons, girder spans for Northern Pacific railroad, 650 tons to American Bridge Co., and 250 tons to McClintic-Marshall Co.

875 tons, Forsythe street viaduct, Atlanta, Ga., Nashville, Chattanooga & St. Louis railroad, to Virginia Bridge & Iron Co.

800 tons, power house, Pacific Gas & Electric Co., Twenty-third and Georgia streets, San Francisco, to Judson-Pacific Co.

750 tons, nurses' home, Methodist Episcopal hospital, Brooklyn, N. Y., to George A. Just Co.

700 tons, building, *Akron Times*, Akron, O., to American Bridge Co.

650 tons, apartment, East Twenty-first street, New York, to Paterson Bridge Co.

600 tons, telephone building, Elizabeth, N. J., to Hinkle Iron Co.

525 tons, sound proof stage, RKO Studios, Los Angeles, to Consolidated Steel Corp.

500 tons, boat plant, Horace E. Dodge Boat & Plane Corp., Newport News, Va., to Virginia Bridge & Iron Co., through Virginia Engineering Co.
500 tons, coal breaker, Philadelphia & Reading Coal & Iron Co., Pottsville, Pa., to Montgomery Iron & Steel Co.
400 tons, bridges, New York Central railroad, to American Bridge Co.
400 tons, caissons for Hotel Biltmore, Oklahoma City, Okla., to Kansas City Structural Steel Co.
400 tons, Publix theater, Ft. Wayne, Ind., to McClintic-Marshall Co., previously reported to unstated fabricator.
380 tons, Methodist church, Winston-Salem, N. C., to Carolina Steel & Iron Co., through James G. Baird Co.
370 tons, draw span, Congress street bridge, Boston, to Boston Bridge Co.
300 tons, catenary bridge supports, Cleveland Union Terminals Co., Cleveland, to Massillon Bridge & Structural Co.
265 tons, Nickel Plate railroad bridge, East Seventy-ninth street, Cleveland, to American Bridge Co.
250 tons, plant, Alliance Drop Forging Co., Alliance, O., to Massillon Bridge & Structural Co.
250 tons, mill building, Maynard, Mass., to Montgomery Iron & Steel Co.
200 tons, state bridge work, Peoria, Ill., to unstated fabricator.
200 tons, Vanderbilt hall, Harvard university, Cambridge, Mass., to New England Structural Co.
200 tons, building addition, Lee Higginson & Co., Boston, to Palmer Steel Co.
150 tons, Frederick H. Hild branch library, Chicago, to Wendnagel & Co.
150 tons, bridges, Baltimore & Ohio railroad, to McClintic-Marshall Co.
140 tons, hotel, Polk and Turk streets, San Francisco, to Judson-Pacific Co.
110 tons, addition to Pier No. 2, Oakland port commission, Oakland, Calif., to Pacific Coast Engineering Co.
100 tons, hangar, Richmond Heights, near Cleveland, to Macomber Steel Co.
100 tons, addition, Ford Plate Glass Co., Toledo, O., to Massillon Bridge & Structural Co.
100 tons, car parts, Virginian railroad, to Virginia Bridge & Iron Co.
100 tons, furnace building, Ingram-Richardson Mfg. Co., Beaver Falls, Pa., to Guibert Steel Co.
100 tons, building, Troy Laundry Co., Cleveland, to National Iron & Wire Co.

CONTRACTS PENDING

5000 tons, convention hall, Philadelphia.
3200 tons, hotel, Madison avenue and Seventy-seventh street, Ne wYork.
2500 tons, Market Street National bank, Philadelphia.
2000 tons, apartment, Park avenue and Eighty-ninth street, New York.
1600 tons, apartment, West Thirty-seventh street, New York.
1500 tons, Union League club, Park avenue, New York.
1340 tons, state highway bridge with lift span at Sturgeon Bay, Wis. (Bids opened Nov. 6); Wasau Iron Works, low bidder at $386,866.77.
1250 tons, highway bridge, Riverside, Calif.
830 tons, office building, First avenue, Phoenix, Ariz. Bids being taken.
800 tons, South Lawrence avenue bridge, Wichita, Kans.
800 tons, apartment, 431 East Fifty-first street, New York.
800 tons, apartment Madison avenue and Seventy-sixth street, New York.
600 tons, Bremerton bridge, Seattle. Bids being taken.
600 tons, church building, Subiaco, Ark.
500 tons, Jewelers' building, Philadelphia. Again up for bids.
500 tons, bridges, Baltimore & Ohio railroad in various locations.
425 tons, 8-story garage, East Thirteenth street, New York.
350 tons, signal towers, Boston & Maine railroad.
300 tons, apartment, Sixty-fourth street, New York.
276 tons, overhead crossing, California Park, Calif. Bids received.
170 tons, vulcanizing plant, Hood Rubber Co., Watertown, Mass.
168 tons, bridge over Corte Madera creek, Sacramento, Calif. Bids Nov. 27.
160 tons, vulcanizing plant, United States Rubber Co., Providence, R. I.
150 tons, bank building, Eighty-first street, New York.
110 tons, mill building, Stamford, Conn.

Concrete Bars

East Is Weak—Chicago Also Reports Declining Demand—Quotations Slide Off

WEAK spots have developed in the East. The trade is not yet certain whether the lull will be long extended, with colder weather exercising a deterrent influence, or whether a return of financial confidence will induce further activity. Chicago demand also declines. One 1300-ton job was let in New Jersey. Most orders involve less than 100 tons apiece.

REINFORCING BAR PRICES, PAGE 1261

New York, Nov. 12.—Some weak spots have developed in warehouse prices for reinforcing concrete bars, although the situation is not general and 2.90c is the nominal price for 5 tons and over. Mill prices are unchanged and at least one large interest has contracted for first quarter requirements at prevailing prices. Mill deliveries are now under three weeks. Orders for 40 to 50 tons continue fairly numerous and make up the bulk of the business. Inquiry is slightly slower following a recent flurry. The Lehigh Warehouse & Transportation Co. warehouse, Newark, N. J., will take 500 tons and will be up for bids soon.

Boston, Nov. 12.—Whether it was the debacle in the stock market or for some other reason business for concrete bars showed a marked falling off last week. Probably little more than 100 tons figured. Odd tonnages let involved possibly 100 tons, while the only pending item involves 150 tons for a bridge at Providence, R. I. Prospects are not bright for the immediate future.

Pittsburgh, Nov. 12.—Shipments of concrete reinforcing bars are active for this period but awards show the usual seasonal decline from preceding months of the year. The approach of colder weather is accompanied by a reduction in new business, and mill backlogs are being reduced steadily. Awards and inquiries lack jobs larger than 100 tons each. The market continues 2.30c, Pittsburgh, for cut lengths and 2.05c for stock lengths.

Chicago, Nov. 12.—Reinforcing bar awards, after about three weeks of fairly brisk activity, again have dropped off. Billet bar quotations, as contained in bids on recent building work, went below 2.00c. About 500 to 600 tons of bars will be purchased by the Chicago sanitary district, and the Centennial building, Springfield, Ill., will take 250 tons.

October building permits for Chicago decreased 314 in number and about 18 per cent in value from October, 1928. The October permits made only a slight gain over September.

Buffalo, Nov. 12.—Demand for reinforcing bars is declining although one lot of about 500 tons is reported ready for coverage this week. Buffalo sellers quote lots for mill shipment at 2.315c, Buffalo. Most sales are being made at current warehouse quotations.

Awards Compared

	Tons
Awards this week	3,810
Awards last week	6,771
Awards two weeks ago	3,341
Awards this week in 1928	2,150
Average weekly awards, 1928	6,189
Average weekly awards, 1929	6,109
Average weekly awards, Oct.	5,969
Total awards to date, 1928	302,297
Total awards to date, 1929	281,034

CONTRACTS PLACED

1300 tons, plant, United States Rubber Co., Passaic, N. J., to Jones & Laughlin Steel Corp., through Turner Construction Co.
500 tons, Women's college hospital, Philadelphia, to Gilmour Rosslyn Steel Co.
500 tons, boardwalk, Rockaway Beach, N. Y., to Carroll & McCreary Co., through D. M. W. Construction Co. This project will also require an unstated tonnage of steel piles.
400 tons, footings, Lawson Memorial Y.M.C.A., Chicago, to unstated fabricator.
200 tons, research building, Gulf Refining Co., Philadelphia, to Gilmour Rosslyn Steel Co.
195 tons, (rail steel), Hamilton county tuberculosis sanitarium, Cincinnati, to West Virginia Rail Co.
150 tons, bridge, Beacon, N. Y., to unstated fabricator.
140 tons, bridge over San Gabriel river, Sacramento, Calif., to unstated company.
125 tons, hospital, Clayton, Mo., to Missouri Rolling Mills Corp.
100 tons, apartment, Fourteenth and N streets, Sacramento, Calif., to Truscon Steel Co.
100 tons, warehouse, East Oak street, Portland, Oreg., to Mercer Steel Co.
100 tons, postoffice, Watertown, N. Y., to Tidewater Structural Materials Corp.

CONTRACTS PENDING

1000 tons or more, 55-foot dam for 1,250,000,000-gallon reservoir at Girard, O., Ohio Water Service Co., Youngstown, O.; general contract to A. Guthrie Co., Minneapolis.
800 tons, Eleventh street viaduct, Tacoma, Wash. General contract to Lindstrom & Feigenson.
750 tons, convention hall, Philadelphia.
500 tons, Henrotin hospital, Chicago.
500 tons, warehouse, Lehigh Warehouse & Transportation Co., Newark, N. J.
325 tons, power house No. 2, Lake Cushman project, Tacoma, Wash. Bids received.
225 tons, factory building, Mechanics Universal Joint Co., Rockford, Ill.
180 tons (mesh), City Bank and Farmers' Loan building, New York.
150 tons, Crawford street bridge, Providence, R. I.

Rails, Cars

October Best Car Month in Five Years—Rails Active in West—Fastening Interest Grows

OCTOBER car orders at 19,506 register the largest month since September, 1924, when 27,630 were awarded. The 10-month total this year exceeds 90,000, ahead of any 12-month total since 1924. More are in sight from St. Louis-Southwestern, Missouri Pacific, Rock Island, Burlington and St. Louis-San Francisco. About 60,000 tons additional rail business was placed.

RAILROAD TRACK PRICES, PAGE 1262

New York, Nov. 12.—Distribution of a number of freight cars is expected shortly, as bids have just gone in on two or three substantial lists. Fresh inquiry is slack but approximately 14,000 are actively pending.

Complete returns indicate that domestic freight car buying last month was by far the heaviest for any single month this year. Orders for 19,506 cars brought the total for the first 10 months up to 90,034 cars. Following is a comparative statement:

	1929	1928	1927	1926
Jan.	13,196	4,160	14,710	8,830
Feb.	15,944	10,220	5,960	12,895
March	12,023	2,958	4,955	8,895
April	8,205	6,043	3,675	4,615
May	7,562	2,531	5,425	4,448
June	5,886	2,422	7,440	4,285
July	341	582	2,295	1,265
Aug.	2,854	677	1,181	152
Sept.	4,517	1,378	682	3,335
Oct.	19,506	2,853	886	2,840
Total (10 mos.)	90,034	33,824	47,209	51,540
Nov.	.....	6,140	1,189	3,925
Dec.	.....	4,799	14,897	8,990
Total	.....	44,763	63,295	64,475

Chicago, Nov. 12.—More rail tonnages have been ordered. Southern Pacific will close shortly on its 122,000 tons and the bulk will go to Colorado and southern mills, it is stated. Wabash asks for 23,000 tons. Chicago & North Western placed 52,000 tons. The latter road also scheduled an additional 3000 tons of lighter rails, and another western road ordered 5000 tons as an addition to its present year's program. Rail mill operations remain at about 80 per cent, the indicated rate for the rest of the year since enough immediate tonnage is in sight to maintain 80 per cent operations until well into December. Part of the 61,000 tons of Missouri Pacific's distribution of 61,000 tons included: 10,000 tons each to Ilinois and Inland Steel Cos.; 12,000 tons to Tennessee Coal, Iron & Railroad Co., and 8000 tons to Colorado Fuel & Iron Co. Inquiries are beginning to appear for track fastenings to accompany rails recently ordered for next year. Inquiry now stands at about 20,000 tons. About 6000 tons of miscellaneous track fastenings orders were placed on order.

Among roads scheduled to buy cars soon is the St. Louis-Southwestern. Several roads with inquiries out for freight cars will also buy passenger equipment, including Missouri Pacific, which has an inquiry out for about 2300 cars. Bids are in for the 5000 Rock Island cars, and for the 600 automobile and flat cars to be bought by the Burlington. Bids closed yesterday for the 3800 St. Louis-San Francisco freight cars.

Philadelphia, Nov. 12.—Railroads in this territory, particularly Pennsylvania and Reading, have placed large orders for track accessories, involving nuts, bolts, spikes, tie plates, angle bars, etc., in connection with their recent rail orders.

CAR ORDERS PLACED

Anglo-Mexican Petroleum Co. Ltd., 11 tank cars, to General American Tank Car Corp.
Chevrolet Motor Co., 20 hopper cars, to Standard Steel Car Co.
Missouri Tank Car Corp., 25 tank cars to unstated builder.
National Railways of Mexico, 600 box cars, 200 gondolas and 200 sets of trucks for standard gage cars, to Standard Steel Car Co.
New York, Chicago & St. Louis, 10 caboose cars to Canton Car Co.

LOCOMOTIVE ORDERS PLACED

Delaware, Lackawanna & Western, two diesel electric locomotives, the oil electric engines to be built by Ingersoll-Rand Co. and electrical apparatus by General Electric Co.; batteries to be furnished by Electric Storage Battery Co.

RAIL ORDERS PLACED

Chicago & North Western, 52,000 tons: 36,000 tons to Illinois Steel Co., and 16,000 tons to Inland Steel Co.
Denver & Rio Grande, 15,000 tons to Colorado Fuel & Iron Co.

CAR ORDERS PENDING

Missouri Pacific, 19 miscellaneous coaches.
Skelly Oil Co., two tank cars.
Western Electric Co., 15 100-ton flat cars.

LOCOMOTIVE ORDERS PENDING

Georgia, Ashburn, Sylvester & Camilla, two locomotives.
Montour, two locomotives.
Seaboard Air Line, five locomotives, in addition to 15 previously noted as pending.
Southern Pacific, 39 locomotives.

RAIL ORDERS PENDING

Wabash railroad, 23,000 tons.

Operating Rates

Youngstown, Chicago, Pittsburgh Decline, Buffalo District Remains

Chicago—Ingot production has been reduced a few points to about 75 to 78 per cent. Finishing mills show little change. Bar and plate mill operations remain at about 80 per cent, while structural mill operations have been reduced to 70 to 75 per cent. Sheet mills in the district are operating at about 75 per cent. Illinois Steel Co. now has three furnaces banked, two at Gary and one at South Chicago. That producer has seven furnaces active at Gary, seven at South Chicago, and one at Joliet. Inland Steel Co. and Youngstown Sheet & Tube Co. have four and two furnaces in blast at Indiana Harbor, and Wisconsin Steel Co. has three stacks active at South Chicago. Thus 24 of the 36 steelworks blast furnaces in the district are blowing.

Pittsburgh—Steelmaking operations are lower at around 75 per cent although some of the larger units are running at a higher rate. The downward trend in schedules of finishing mills continues. Sheet production averages 65 per cent, with tin plate on a 60 to 65 per cent basis. Strip mill operations continue at 50 per cent. Pipe mill schedules are off slightly at about 65 per cent.

Buffalo—Operations in the Buffalo district held this week at 70 per cent of ingot capacity. November schedules call for continuation of this rate barring unexpected developments in the general steel market.

Youngstown, O.—Operations in this district continue to recede. Independent steel mill output will be slightly above 60 per cent. Output of the Steel corporation dropped to 60 per cent, a decline of 10 per cent from last week. Independent sheet mills are irregular, with 76 of the 120 units scheduled. Strip mill schedules are about 60 per cent and tin plate production about 75 per cent. Independent and Corporation bar mills are averaging 65 per cent.

Unfilled Tonnage Gains

For the second consecutive month unfilled bookings of the United States Steel Corp. have increased totaling 4,068,562 tons as of Oct. 31. The is a gain of 183,981 tons, or 4.71 per cent. Further comparisons follow:

Date	Total	Change, tonnage	Change, per cent	
Oct. 31, 1929	4,068,562	183,981	+ 4.71	+
Sept. 30, 1929	3,902,581	244,370	+ 6.68	+
Aug. 31, 1929	3,658,211	429,966	—10.5	—
July 31, 1929	4,088,177	168,733	— 3.9	—
June 30, 1929	4,256,910	47,257	— 1.10	—
May 31, 1929	4,304,167	123,596	— 2.88	—
Apr. 30, 1929	4,427,763	17,045	+ 0.38	+
Mar. 31, 1929	4,410,718	266,377	+ 5.70	+
Feb. 28, 1929	4,144,341	34,854	+ 0.84	+
Jan. 31, 1929	4,109,487	132,775	+ 3.34	+
Dec. 31, 1928	3,976,712	303,712	+ 8.25	+
Nov. 30, 1928	3,673,000	78,030	— 2.80	—
Oct. 31, 1928	3,751,030	52,662	+ 1.42	+
Sept. 30, 1928	3,698,368	74,325	+ 2.05	+
Aug. 31, 1928	3,629,042	53,116	+ 1.40	+
July 31, 1928	3,570,927	66,082	— 1.81	—
June 30, 1928	3,637,009	220,187	+ 6.45	+
May 31, 1928	3,416,822	455,311	—11.70	—
Apr. 30, 1928	3,872,133	463,073	—10.70	—
Mar. 31, 1928	4,335,206	62,983	— 1.43	—
Feb. 29, 1928	4,398,189	122,242	+ 2.80	+
Jan. 31, 1928	4,275,947	303,073	+ 7.62	+
Dec. 31, 1927	3,972,874	518,430	+15.00	+
Nov. 30, 1927	3,454,444	113,404	+ 3.39	+
Oct. 31, 1927	3,341,040	192,921	+ 6.10	+
Sept. 30, 1927	3,148,113	47,924	— 1.49	—
Aug. 31, 1927	3,196,037	54,023	+ 1.70	+

Wire

Small, Steady Demand Is Keeping Market Level—Fencing Season Is Over—Extending Prices

CONTINUANCE of improved buying from jobbers is noted at Chicago. Nails continue in low demand. Fencing has been sold in good tonnages but the season is over. Current prices have been announced to apply on first quarter business. Production is generally at about 60 per cent of capacity, with mills noting the absence of automotive needs.

WIRE PRICES, PAGE 1262

Chicago, Nov. 12.—Backlogs of common wire products are showing no gain. Jobber requirements are holding to the recent heavier volume. Manufacturers' wire demand is spotty. The low level of activity for nails still prevails. Operations are barely 60 per cent. Western wire mills have just closed a season of good activity in woven fencing. Quotations are virtually untested in the present market, but prices are maintained at 2.60c, Chicago or western mills, for annealed wire, 2.45c for bright plain wire, and $2.45 for wire nails to large jobbers.

Worcester, Mass., Nov. 12.—Eastern wire manufacturers have yet to feel the recession reported from western districts. Wide diversity of products is maintaining production on a schedule almost as high as that for October, although November is not expected to equal the previous month's mark. Operations continue at about 85 per cent. Plain bright wire is firm at 2.55c to 2.65c, Worcester.

Pittsburgh, Nov. 12.—Prices on wire products are holding at the levels announced a short time ago, although new business is light. Shipments are off slightly, with mill backlogs at a minimum. Manufacturers' wire feels the effect of lighter operations in the automotive industry although specifications from other consumers are in fair seasonal volume. Fencing material activity is in a seasonal decline although specifications are expected shortly for January shipments. Nails continue slow. The market holds at 2.40c, Pittsburgh, for plain wire and $2.40 to $2.50 for wire nails. Producers have announced that current prices on wire products will be continued on first quarter business.

Cleveland, Nov. 12.—Orders for wire and wire nails are of small dimensions. The former is fairly active but small amounts rule. Mills operate at 60 to 70 per cent, some operating on stock wherever possible. Nail buying is about over for the season.

Cold Finished Steel

Automotive Releases Are Light—Contracts Now Revised

COLD FINISHED PRICES, PAGE 1262

Pittsburgh, Nov. 12.—Business in cold-finished steel bars and shafting continues light, although some releases have been received from automotive interests. The latter tonnage is light and confined to a few companies. Sentiment of automobile builders does not point to substantial upturn in production before the first of the year and this will have a corresponding effect on cold bar demand. Buying of miscellaneous users is in steady volume but fails to offset lighter automotive demand.

Cleveland, Nov. 12.—Revision of cold-finished bar contracts for fourth quarter at $2 lower than contract figures is about complete. Specifications are slow, larger tonnages awaiting activity of the automotive industry. The new price is 2.20c, Cleveland.

Detroit, Nov. 12.—With the $2 per ton reduction in the Cleveland base, cold finished bars now are 2.435c, delivered Detroit. Suspensions have blocked shipments into this district, with the outlook for extremely low releases the remainder of the year. Users have no stocks, and any improvement in automotive production, now at the lowest point of the year, surely will be reflected immediately in orders.

To Decide Bolt Merger Details Nov. 22

Cleveland, Nov. 12.—Name style, changes in personnel and other details attendant upon the merger of the Lamson & Sessions Co. and the Lake Erie Bolt & Nut Co. will be worked out and decided upon at a joint meeting of the stockholders to be held in this city Nov. 22.

Strip

Production Steady at 50 Per Cent—Lack of Auto Business Is Felt Keenly by Most Mills

ALTHOUGH stripmakers need business and are able to operate at only half rate, they are not generally seeking business by cutting prices. Except for automotive users, most consumers are taking a fair volume of material. A few releases from automobile builders have been received but not of important size. Production has been curtailed sharply.

STRIP PRICES, PAGE 1262

Pittsburgh, Nov. 12.—Strip steel producers are maintaining their former operations of 50 per cent. A few releases have been received from automotive users but these involve only small tonnages. No change is noted in shipments to other consumers, with the general movement in fair seasonal volume. Prices are maintained fairly well, with no revisions from the former 1.90c and 2.00c, prices on hot strip and 2.75c being quoted on cold-rolled strip.

New York, Nov. 12.—Strip prices have been showing greater resistance than on most other sheet descriptions. Cold-rolled material is moderately steady at 2.75c, Pittsburgh, while hot strip appears firm at 1.90c to 2.00c, Pittsburgh, depending upon widths. Deliveries on hot strip continue at two to three weeks and on cold strip at three weeks.

Cleveland, Nov. 12.—Hot and cold strip mills need orders. Despite this fact, no tendency is apparent aggressively to seek business at the expense of price. Mills here and those soliciting business in this territory quote 1.90c to 2.00c, Pittsburgh, on hot, depending upon width. Reports of 1.85c on wide continue to come from Detroit. Nothing less than 2.75c, Cleveland-Pittsburgh, has been done on cold. Several mills report a number of orders, all of which are small, at that level.

Philadelphia, Nov. 12.—Strip demand continues quiet with mills needing business. The usual prices on hot rolled continue at 1.90c and 2.00c, base, Pittsburgh. These levels, however, are being shaded occasionally on attractive business. Cold strip at 2.75c, Pittsburgh also is occasionally shaded.

Against Direct Trading

New York, Nov. 12.—Electric Railway association, at a recent meeting at Atlantic City, N. J., approved a report by its purchases and stores committee in which the importance of members of the association in dealing with responsible scrap dealers was emphasized. Inferentially the report opposes direct dealing with scrap consumers, it is stated by the Institute of Scrap Iron and Steel Inc., New York.

Nonferrous Metals

Price Weakness in Lead and Zinc Gives Rise to Reports of Curtailed Production—Copper Is Shaded—October Statistics Strong

Prices of the Week, Cents a Pound

	Copper Electro delivered	Copper Lake delivered	Copper Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Nov. 6	18.00	18.10	16.62½	39.62½	40.25	6.35	6.20	6.25	23.90	8.37½	35.00
Nov. 7	18.00	18.10	16.62½	39.62½	40.25	6.25	6.10	6.25	23.90	8.37½	35.00
Nov. 8	18.00	18.10	16.62½	39.62½	40.25	6.25	6.10	6.25	23.90	8.37½	35.00
Nov. 11	18.00	18.10	16.62½	39.00	39.50	6.25	6.10	6.25	23.90	8.45	35.00
Nov. 12	18.00	18.10	16.62½	39.45	39.87½	6.25	6.10	6.25	23.90	8.45	35.00

NEW YORK, Nov. 12.—Recent sharp reductions in prices of zinc and lead have brought out reports of curtailed production programs in these metals during the past week. Although electrolytic copper producers have remained firm in their quotations while weakness has developed in all other nonferrous metal prices except aluminum, rumors are heard in the red metal market that additional curtailment of output may be instituted.

Fresh business in general has continued dull while price shading has been reported in nearly all metals. Current lead and zinc quotations are the lowest in over a year while tin prices have not been so weak in more than six years. Zinc and lead ore quotations again have been cut in the Tri-State district while nonferrous scrap metal prices reflect virgin metal easiness in leading markets of the country. Brass ingot prices have been reduced a half-cent by most leading sellers.

Uncertainty has appeared to color the trend of business in general since the series of recent stock breaks.

Copper—Despite October reduction of refined copper stocks to the lowest level since June this year and a gain in total shipments to the second largest movement on record, limited to fair tonnages of metal have been offered by second hands at a quarter to a half-cent under producers' prices. Consumers have continued to show little interest in purchases in spite of the resale offerings. Producers, in the meantime, have held steadily to their 18-cent quotations. Production of refined copper increased during October to the largest tonnage since July and producers have been reported as predicting that November output undoubtedly will be under the October rate. Export sales have lagged with domestic demand this week.

Tin—Uncertainty, lack of buying interest, and weakening influence from abroad have continued prevalent in the tin market. A display of strength in prices on Tuesday led the interest in the market here to believe that professional support was being given to the London market. Consumers' faith in the future trend conditions here remains absent.

Zinc—Although price shading is believed to have declined, somewhat, during the past week, reports persist of metal offered at less than producers' quotations. It is stated that due to weakness in the market in this country resulting from price declines in London and large stocks available here, reduced output is being planned. Production was cut a few thousand tons last month.

Lead—The St. Joseph Lead Co. has announced a 15 per cent curtailment of production, and while definite announcements from other companies are lacking, additional curtailment is said to be pending. Producers are holding to their present price levels although some shading is reported possible.

Antimony—This market has remained dull but prices fairly steady during the last week.

Aluminum—Prices are firm but buying still is light.—*Daily Metal Trade.*

Mill Products

Base price cents per pound f.o.b. mill, except where otherwise specified

SHEETS	
Yellow brass (high)	23.25
Copper, hot rolled	27.75
Lead, full sheets (cut ½c more)	9.25
Zinc sheet (100-pound base)	$10.50
Zinc strip (100-pound base)	$9.50
Aluminum, flat sheets, up to 10 gage, 3 to 72 inches wide	31.30
SEAMLESS TUBE	
Yellow brass (high)	28.25
Copper	29.25
RODS	
Yellow brass (high, full turnings)	21.25
Naval brass	24.00
WIRE	
Copper	19.87½
Yellow brass (high)	23.75

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	11.75 to 12.25
Chicago	11.50 to 11.75
Cleveland	11.75 to 12.00
St. Louis	12.00 to 12.50
HEAVY YELLOW BRASS	
Cleveland	8.00 to 8.50
HEAVY COPPER AND WIRE	
New York	14.50 to 14.75
Boston	13.75 to 14.25
Chicago	13.00 to 13.25
Cleveland	13.50 to 14.00
St. Louis	11.50 to 12.00
RED BRASS BORINGS	
New York	11.00 to 11.50
YELLOW BRASS TUBING	
Cleveland	7.75 to 8.00
LIGHT COPPER	
New York	12.50 to 12.75
Chicago	11.75 to 12.00
Cleveland	12.25 to 12.50
St. Louis	11.50 to 12.00
LIGHT BRASS	
Boston	6.50 to 6.75
Chicago	6.75 to 7.00
Cleveland	6.25 to 6.50
St. Louis	7.00 to 7.50
ZINC	
New York	3.25 to 3.50
Cleveland	2.75 to 3.00
St. Louis	3.50
ALUMINUM	
Clippings, Cleveland	16.50 to 17.00
Borings, Cleveland	9.50 to 10.00
Cast, Cleveland	12.00 to 12.50
Cast, Boston	10.50 to 11.00
Cast, St. Louis	12.25 to 12.50

Secondary Metals

Remelt aluminum No. 12	17.00 to 17.50
Brass ingot, 85-5-5-5	15.50 to 15.75

Coke By-Products

Phenol Situation Is Easier—Naphthalene Prices Are Softer

New York, Nov. 12.—Light oil distillates are active at firm and unchanged prices. Production holds to a seasonally high rate. Benzol continues to move steadily into broad, consuming channels. Export demand is more uneven, but has not slipped greatly. Slowing up in the automobile industry has not been reflected in toluol to the extent that might be expected. Solvent naphtha and commercial xylol continue to move in large volume.

The tight situation in phenol has eased slightly, but little or no spot material appears. Some business is done at 18.00c, one distributer quoting 17.00c to 18.00c. Bulk of the business, however, is being moved at 17.00c.

Naphthalene is slow and prices are inclined to weakness. Little change in this market is expected until after Jan. 1. The dye trade is taking little stock. Sulphate of ammonia is nominally unchanged, but the domestic trade is dull. Slightly more interest is noted for export.

Coke By-Products

Per Gallon at Producers' Plant in Tank Lots	**Spot**
Pure Benzol	$0.23
90 per cent benzol	0.23
Toluol	0.40
Solvent naphtha	0.30
Commercial xylol	0.30
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.17 to 0.18
Per Pound at Producers' Plants	
Naphthalene flakes	0.04½ to 0.05½
Naphthalene balls	0.05½ to 0.06½
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.15 to $2.25

Warehouse

Seasonal Influences at Work—Mills Handicapped by Taking Small Orders—Cold Bars Off $2 at New York

PARTIALLY affected by seasonal conditions, jobbers appear to be doing less business than in October. The growing tendency among mills to accept small orders also is given as a reason for declining order books among warehouses. Boiler tubes were advanced at Detroit. Cold finished bars declined at New York. Remainder of price list is practically unchanged.

Buffalo—Warehouses report a fair volume of business for the season. Sales, however, are running considerably behind the average for the second and third quarter. Mills continue to seek smaller tonnages.

New York—Local jobbers reduced cold-drawn bars 10 cents per 100 pounds, now quoting flats and squares at 4.00c and rounds and hexagons at 3.50c. This follows the recent mill reduction. Revision of bar extras to conform with the mill revision of Oct. 1 is again deferred. Demand for cold-drawn bars is slower. Leading jobbers assert the current rate is under October's and lower than a year ago.

Philadelphia—Jobbers report that business is quiet. Prices are unchanged. Three jobbers here are completing plans for a merger which will result in one warehouse taking the place of three.

Pittsburgh—Jobbers have made no change in prices of cold-rolled steel bars following the recent $2 mill reduction. Current quotations of 3.60c for rounds and hexagons and 4.10c for flats and squares continue. Business holds fairly well to October rate.

Cleveland—Steady demand for iron and steel out of stock is reported by warehouses here. There has been a noticeable slowing down in recent weeks, although mill customers are taking material from the warehouses more actively than in the past. However, mill competition is being encountered on small lot business. Prices are unchanged.

Cincinnati—Jobbers report business less active, affected only partially by seasonal conditions. Changes in prices of sheets and bars have not been reflected here.

Detroit—Boiler tubes have been advanced in price by local warehouses, reflecting recent mill changes. Other prices are unchanged. Orders are numerous but individually light.

St. Louis—Demand for iron and steel is reported fairly brisk. Certain items still show a tendency to lag. The general demand for sheets holds up well, with galvanized better.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chattanooga	3.25c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York†††‡	3.25c
Philadelphia*	2.80c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.40c
Seattle	3.15c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chattanooga	3.25c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York††	2.80c to 3.24c
Philadelphia*	2.80c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.95c
Chattanooga	3.25c
Cincinnati	3.15c
Cleveland	2.25c to 2.44c
Detroit	2.30c to 3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl	2.46c
Los Angeles lcl	2.70c
New York	2.90c to 3.30c
Philadelphia	2.75c to 3.10c
Pittsburgh	2.90c to 3.175c
San Francisco cl.	2.30c
San Francisco lcl.	2.60c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chattanooga	3.35c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.00c
Houston	3.25c
Los Angeles	3.30c
New York†††‡	3.15c to 3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chattanooga	3.35c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.10c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York‡‡	3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	2.75c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.60c
Boston 3/16-in.	3.915c
Buffalo	3.50c
Chattanooga	3.75c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.50c
Houston	3.90c
Los Angeles	4.00c
New York‡‡	3.50c to 3.90c
Portland	3.75c
Philadelphia*†	3.25c
Pittsburgh**	3.35c to 3.45c
San Francisco	4.00c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.34c

NO. 24 BLACK SHEETS

Baltimore*†	3.75c
Boston	4.85c
Buffalo	4.20c
Chicago	4.05c
Cincinnati	4.05c
Cleveland***	3.75c to 3.90c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York	3.90c to 4.00c
Philadelphia*†	3.90c
Pittsburgh**	3.85c
Portland	4.90c
San Francisco	5.00c
Seattle	5.00c
St. Louis	4.25c
St. Paul	3.89c
Tulsa	4.34c

NO. 24 GALVANIZED SHEETS

Baltimore*†	4.50c
Boston	5.60c
Buffalo	4.70c to 4.85c
Chicago	4.90c
Cincinnati	4.90c
Cleveland***	4.60c to 4.75c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.40c
Los Angeles	5.30c
New York	4.60c to 4.75c
Philadelphia*†	4.65c
Pittsburgh**	4.85c to 4.95c
Portland	5.50c
San Francisco	5.40c
Seattle	5.50c
St. Louis	5.10c
St. Paul	4.68c
Tulsa	5.10c to 5.35c

BANDS

Baltimore	4.00c
Boston	4.015c to 5.00c
Buffalo	3.65c
Chattanooga	3.45c
Chicago	3.20c
Cincinnati	3.50c
Cleveland	3.25c to 3.65c
Detroit 3/16-in. and lighter	3.30c
Ft. Worth	4.25c
Houston	3.65c
Los Angeles	4.15c
New York‡‡	3.75c
Philadelphia*	3.30c
Pittsburgh	3.25c
Portland	4.00c
San Francisco	3.75c
Seattle	4.00c
St. Paul	3.50c
Tulsa	4.50c to 4.69c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.25c to 3.65c
Detroit, No. 14 and lighter	3.80c
New York‡‡	4.25c
Philadelphia*	3.55c
Pittsburgh	4.25c
Seattle	5.00c
St. Paul	4.00c

COLD FINISHED STEEL

	Rounds, Falts, hexagons, squares	
Baltimore (c)	3.50c(a)	4.00c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chattanooga*	3.85c	4.35c(d)
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.50c	4.00c
Philadelphia*	3.50c	4.00c
Pittsburgh	3.70c	4.20c
Portland (a)	4.50c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.64c	5.14c

(a) Rounds only; (d) Squares only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pounds lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.15c

(b) Net base, straightening, cutting, boxing 1 ton or more. (c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	13.00c
Iron bars, round	6.10c
Iron bars, flats and squares	6.50c

*Plus quantity differentials. ‡‡Minus quantity differentials. ††Domestic bars. **Less than 25 sheets. *†50 or more bundles. ***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time

Pacific Coast

Normal Seasonal Demand Prevails in Most Lines—Prices Show Weakness

SUCH slackening of inquiry and sales of steel products as has appeared on the coast is attributed to the seasonal situation, and considerable tonnage on inquiry still is actively pending. Prices are largely unchanged, without thorough test, but some shading has developed in plates. Pipe and structurals continue to bring considerable tonnage to sellers.

San Francisco, Nov. 9.—(*By Air Mail*)—Demand for iron and steel products on the Pacific coast continues well sustained. Of special interest this week is the inquiry of the Southern Pacific Co., San Francisco, for 1930 track material requirements which include 120,000 tons of rails, and an inquiry for 100,000 tons of gas pipe by the Standard Oil Co., San Francisco. While prices in most lines continue fairly well maintained, plate quotations are weak and as much as $4 a ton below the 2.35c, c.i.f. price, was named this week.

Importations of iron and steel products on the Pacific coast during July, figures for which have just been received, show on the whole a decrease from the tonnage of June. Totals for the major items were as follows:

	Tons July 1929	Tons June 1929	Tons July 1928
Pig iron	2,054	1,277	1,248
Coke	8,212	2,235	4,659
Bars	1,035	1,016	2,615
Shapes	3,430	3,787	1,42c
Cast iron pipe	1,600	4,703	4,145
Tubular products	1,776	2,832	2,157

Pig Iron and Coke

Movement of foundry pig iron and coke continues limited to small lots for prompt shipment and no large inquiries or sales were reported this week. Prices remain unchanged.

Bars, Plates and Shapes

Out-of-stock prices on concrete bars in the San Francisco district continue unchanged at 2.30c, base, on carload quantities and at 2.60c on lesser lots. Los Angeles prices are $2 a ton higher. Awards this week aggregated 1084 tons, compared with 1634 tons for the weekly average for the year. Truscon Steel Co. took 100 tons for an apartment in Sacramento, and 147 tons for a bridge over the San Gabriel river went to unnamed interests. Pending business includes 360 tons for a Veterans' home at Yountville, Calif.

After several weeks of fair activity in the plate market, awards this week were all confined to small lots. Bids were opened this week on 100 tons for a welded steel pipe line in Oakland for the East Bay municipal utility district. On the latter project the Steel Tank & Pipe Co. was low bidder. No new inquiries of importance are in the market. Plate prices are weak and one interest reports placing tonnage at 2.15c, c.i.f., although the nominal figure has been 2.35c for some months.

Important structural awards include 800 tons for a powerhouse and 140 tons for a hotel, both in San Francisco, booked by the Judson-Pacific Co., 525 tons for a sound proof stage in Los Angeles, secured by the Consolidated Steel Corp., and 110 tons for a pier addition in Oakland for the Port commission, taken by the Pacific Coast Engineering Co. Bids are being taken on 800 tons for an office building in Phoenix and on 168 tons for a bridge over the Corte Madera Creek Marin County. Plain shapes are firm at 2.35c, c.i.f.

Other Finished Material

The American Cast Iron Pipe Co. took 200 tons for Burbank, Calif., and the National Cast Iron Pipe Co. 297 tons for El Segundo, Calif. Pending business totals less than 2200 tons. Los Angeles will open bids Nov. 25 on 477 tons for the improvement of Miramonte park. San Diego will open bids Nov. 25 on 293 tons. Stocks of standard pipe in distributors' warehouses are well rounded and movement is not particularly heavy at this time. The Standard Oil Co. has come into the market for 100,000 tons of gas pipe.

The Southern Pacific Co. has just entered the market for 120,000 tons of 90-pound to 130-pound standard tee rails. In addition a large tonnage of track bolts, track spikes and tie plates are involved. The Pacific Car & Foundry Co. took 400 refrigerator cars for the Pacific Fruit Express Co.

Seattle Inquiry Slack

Seattle, Nov. 6.—Conditions in the Pacific Northwest iron and steel trades are normal, Following three months of activity with heavy lettings, there is somewhat less activity although several large tonnages still are pending.

The only large tonnage placed this week consisted of 2700 tons of pipe bands and shoes purchased by the Federal Pipe & Tank Co., which has three large contracts in hand for wood stave pipe. This company will furnish 10 miles of 78-inch wood pipe for Seattle, calling for 1900 tons of steel bands, six miles of 52-inch pipe for Everett, involving 500 tons of steel bands and four miles of 34-inch pipe for Lake Chelan, Wash., requiring 300 tons of steel bands. This material will be supplied by local steel mills and forge plants. The Seattle job also involves 60 tons of plates and 30 tons of special castings.

Mill prices are unchanged at 2.35c for bars, plates and shapes, with reinforcing bars still 2.30c. While plates are reported somewhat weak no business has developed to test 2.35c in this territory.

Bars, Plates and Shapes

Local steel mills report few specifications for large tonnages. Operations are unchanged but business consists mostly of car lots. The usual seasonal decline is apparent. Jobbers are buying in smaller quantities. The situation is not unusual for this month. No large tonnages are pending. New business includes the Tacoma grain elevators and the Seattle Athletic club building, tonnages for which are not yet available.

Recent awards for plate tonnages have left but one important project pending. This is a ten-mile water pipe line at Port Angeles, bids for which have been rejected. Plans have been altered and a special election will be held Dec. 3 to increase the bond issue from $500,000 to $800,000.

There were no structural awards of 100 tons or more this week. New projects include 300 tons for the Port of Tacoma grain elevators. Award of contract for the Fourteenth avenue South bridge, Seattle, involving 1100 tons of shapes, has been postponed owing to a legal technicality. Local fabricating plants are fairly well supplied with work.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	25.00 to 26.00

*C.i.f. duty paid.

Use New Sand Process

New York, Nov. 12.—A sand spun process of different character than now employed in this country will be used at the proposed Chelsea, Mass., cast iron pipe plant of the International Pipe & Mining Co., American subsidiary of Pont-a-Mousson. Pipe to be made will range from 4 to 24 inches. Initial capacity will be 100,000 tons annually, to be increased later 50 per cent. Pile driving on the waterfront at Chelsea started last week.

Suspends Rate Increase

Washington, Nov. 12.—Interstate commerce commission has suspended from Nov. 12, 1929, to June 12, 1930, schedules proposing to increase rates on iron and steel articles by cancelling existing commodity rates from points in Alabama, Georgia, Tennessee and Mississippi, to destinations in trunk line and New England territory by applying class rates instead. Meanwhile, the commission will make an investigation to determine whether the proposed change is justified.

Senate Upsets Iron, Steel Duties

Coalition Cuts Pig Iron to Original 1922 Rate of 75 Cents—Manganese Again Dutiable at 1c Pound—Tariff Bill Fate Still Doubtful

WASHINGTON, Nov. 12.—The coalition of the senate is riding rough shod over the wishes of the administration in rewriting the tariff bill on the floor and rejected almost all of the changes recommended by the finance committee in the metal schedule.

The two outstanding defeats for the administration in the metal schedule were the reduction of the rate on pig iron and the placing of a duty of 1 cent per pound on manganese.

Rejecting the suggestion of the finance committee for a duty on pig iron of $1.50 per ton, the senate adopted an amendment by Senator Barkley, of Kentucky, by a vote of 48 to 30 reducing the rate to 75 cents per ton. This is where it was before President Coolidge, by proclamation, increased it 50 per cent to $1.12½. The rate of $1.12½ was adopted by the house but the finance committee suggested an increased rate to $1.50.

Proponents Fight Hard

Senator Barkley, incidently, was one of the members of the subcommittee at the hearings on the metal schedule.

Senator Reed, of Pennsylvania, who did everything possible to stem the tide against the suggestions of the finance committee until he found that it was absolutely useless, told the senate in discussing the pig iron rate that the tariff commission had held that it would require from $7.67 to $7.70 to equalize the difference in the domestic and foreign production costs, but that, as the flexible provision limited the increase to not more than 50 per cent of the Fordney-McCumber rate, the commission was able to recommend to President Coolidge only the rise to $1.12½. The senator stated that last year 32 merchant furnaces had lost 15 per cent on their invested capital.

The senate also rejected the suggestion of the finance committee that the rate on spiegeleisen "containing more than 1 per centum of carbon" be increased from 75 cents to $1 per ton as provided by the house.

The recommendation of the committee to insert in the pig iron paragraph No. 301, "granular or sponge iron, $2 per ton," also was rejected by the senate. It also struck out of paragraph 303 the provision for granular or sponge iron which apparently throws this into the basket clause of the metal schedule. It is expected, however, that before the bill is perfected further action will be taken on this matter.

The senate did adopt, however, suggestions of the finance committee slightly to increase the duty on alloys in paragraph 301. It agreed also, in this same paragraph, to the addition of "hammer scale, roll scale, and mill scale, 75 cents per ton."

The proposition of the finance committee to put manganese ore on the free list of the bill was rejected by the senate and by a vote of 60 to 18 accepted the amendment of Senator Oddie, of Nevada, to place a duty on the ore of 1 cent per pound on ore containing 10 per cent or more metallic content. Under the present law the duty is 1 cent per pound on ore containing 30 per cent manganese content or more.

During the course of the long debate on manganese ore Senator Ashhurst, of Arizona, referred to the profits of the "steel trust" and gave the following tabulation which had been furnished to the senate by the bureau of internal revenue, treasury department, showing the earnings of eight steel companies:

AMERICAN ROLLING MILL COMPANY

Year	Profit	Year	Profit
1922	$2,605,766.00	1927	$3,452,549.00
1923	3,518,223.00	1928	14,062,978.00
1924	2,662,637.00		
1925	2,753,093.00	Total	$33,071,239.00
1926	4,015,999.00		

BETHLEHEM STEEL CORPORATION

Year	Profit	Year	Profit
1922	$4,607,254.00	1927	$15,529,917.00
1923	12,710,712.00	1928	15,908,830.00
1924	8,922,446.00		
1925	15,980,834.00	Total	$93,906,160.00
1926	20,246,166.00		

GULF STATES STEEL COMPANY

Year	Profit	Year	Profit
1922	$958,207.00	1927	$756,403.00
1923	1,576,524.00	1928	924,745.00
1924	912,873.00		
1925	1,036,777.00	Total	$6,945,321.00
1926	779,972.00		

INLAND STEEL COMPANY OF CHICAGO

Year	Profit	Year	Profit
1922	$1,150,008.00	1927	$7,800,894.00
1923	5,600,168.00	1928	10,394,297.00
1924	6,190,600.00		
1925	5,538,734.00	Total	$44,714,406.00
1926	8,039,704.00		

OTIS STEEL COMPANY

Year	Profit	Year	Profit
1922	$496,207.98	1928	$3,746,811.67
1923	1,358,231.24		
1925	1,162,612.86	Total	$8,123,767.85
1927	1,359,904.10		

REPUBLIC IRON AND STEEL COMPANY

Year	Profit	Year	Profit
1923	$6,644,343.00	1927	$3,018,282.00
1924	2,068,297.00	1928	4,642,450.00
1925	3,813,484.00		
1926	3,623,744.00	Total	$23,810,630.00

UNITED STATES STEEL CORPORATION

Year	Profit	Year	Profit
1922	$39,653,475.00	1927	$87,806,836.00
1923	108,707,064.00	1928	114,173,744.00
1924	85,110,940.00		
1925	90,602,652.00	Total	$642,875,105.00
1926	116,667,404.00		

WHEELING STEEL CORPORATION

Year	Profit	Year	Profit
1922	$175,260.00	1927	$4,028,912.00
1923	5,448,169.00	1928	6,443,739.00
1924	865,110.00		
1925	4,073,295.00	Total	$28,244,669.00
1926	5,660,184.00		

The finance committee proposal to reduce from 1⅞ cents to sixty-five one hundredths of 1 cent per pound the duty on metallic manganese contained in ferromanganese which contains more than 1 per cent of carbon also was rejected. The same proposed reduction on the manganese contained in manganese metal, manganese silicon, manganese boron, and ferromanganese and spiegeleisen containing not more than 1 per cent carbon was rejected, and the present rate of 1⅞ cents per pound plus 15 per cent ad valorem remained in the bill.

Senator Reed proposed an amendment to clarify the language of the paragraph so that aluminum with a small silicon alloy may not be admitted under its provisions. The duty on silicon aluminum was reduced from 5 cents, as provided for by the house, per pound to 3½ cents as proposed by the finance committee.

Alters Duty on Alsimin

The bill as it passed the house proposed a 5 cent per pound duty on alsimin, ferrosilicon aluminum and ferroaluminum. The finance committee rejected the word "alsimin" because that product is dutiable as ferrosilicon aluminum. The senate agreed to the committee amendment embodying this rejection and also changing the duty on ferrosilicon aluminum and ferroaluminum silicon to 25 per cent ad valorem instead of the house rate of 5 cents per pound.

A reduction from 3½ cents to 2½ cents per pound on chromium contained in ferrochrome or ferrochromium containing 3 per cent or more of carbon was agreed to. A reduction from 30 to 25 per cent ad valorem on ferrochrome or ferrochromium containing

less than 3 per cent of carbon and chrome metal, or chromium metal, also was agreed to. The higher rates in each instance are embodied in the present law.

A committee proposal to insert in section M, of paragraph 302, the words strontium, tantalum, thorium, was adopted. No change was made in the rates on strontium and thorium, but tantalum, was transferred from the free list to a duty of 25 per cent ad valorem.

A committee proposal to increase the duty on ductile cloumbium or niobium metal, from 25 per cent ad valorem, as proposed in the house bill, to 40 per cent, was adopted.

Rejection of a committee amendment of two-tenths of 1 cent per pound on muck bars, pieces thereof, except crock ends, bar iron, and round iron in coils or rods, iron in slabs, blooms, loops or other forms less finished than iron in bars and more advanced than pig iron, except castings, valued at not over 1 cent per pound, was agreed to.

Senate Agrees to Change

A committee proposal to eliminate from paragraph 305 the following "on all steel or iron in all forms and shapes by whatever process made and by whatever name designated, whether cast hot or cold, rolled, forged, stamped or drawn," proposed by the house was agreed to by the senate. In lieu of these words the senate inserted the following: "On all steel or iron in the materials and articles enumerated or described in such paragraphs."

The senate adopted a committee proposal which would place a duty of 8 per cent ad valorem on steel or iron which contains more than one-tenth of 1 per cent of vanadium or more than two-tenths of 1 per cent of tungsten, or molybdenum, or more than three-tenths of 1 per cent of chromium.

A committee-proposed reduction from 4 cents to 3 cents per pound on the chomium content of iron and steel articles in excess of three-tenths of 1 per cent was adopted.

The committee proposal to insert in paragraph 305 section B reading as follows was rejected: "There shall be deducted from the duties provided in paragraphs 304, 307, 308, 309, 310, 312, 313, 314, 315, 316, 317, 319, 322, 323, 324 and 328 on steel and articles of steel, an amount equal to 87 ten thousandths of 1 cent for each pound of steel or article."

A committee proposal to eliminate from paragraph 307 the duty of seven-twentieths of 1 cent per pound on boiler or other plate iron and steel and certain related articles valued at 1 cent per pound or less was adopted.

When Senator Reed explained that "nobody could be found who knew what building forms are," the senate agreed to a committee amendment to eliminate building forms from paragraph 312.

The senate by a vote of 19 to 51 rejected the committee amendment providing an increase from one-fifth to three-tenths of one cent per pound on beams, girders, joists, angles, channels, car truck channels, tees, columns and posts, deck and bulb beams, together with all other structural shapes of iron or steel, not assembled, manufactured or advanced beyond hammering, rolling or casting. This leaves the rate the same as in the existing law.

An amendment to increase from one-fifth to three-tenths of 1 cent per pound the rate on sheet piling was rejected without a record vote. Under the 1922 act, sheet piling, machined, drilled, punched, assembled, fitted, etc., is dutiable at 20 per cent ad valorem while other sheet piling is dutiable at one-fifth of 1 cent per pound. The senate rejected the finance committee amendment increasing from 50 to approximately 100 per cent ad valorem the duty on fine wire netting, suitable for use as chicken and yard netting.

An increase from the house rates of 40 per cent to 50 per cent ad valorem on manufactured iron and steel tubes and cylinders over 20 inches in diameter with walls exceeding one and one-quarter inches in thickness was accepted by the senate. Duties of 50 per cent ad valorem were fixed on molders' "patterns" for the manufacture of castings of whatever material made.

The senate also eliminated a proposed duty of 60 per cent on twist drills and reamers, milling cutters, and other similar articles containing more than three-tenths of 1 per cent of chromium.

The senate rejected the finance committee amendment to reduce the rate on tungsten ores from 50 to 45 cents per pound. It approved a reduction to $1 per pound on cerium metal, adopted a rate on ferrocerium and other cerium alloys of $1 per pound and 25 per cent, and a 60 per cent rate on ingots, shot, bars, sheets, etc., not otherwise provided for and containing more than 50 per cent of tungsten, molybdenum, etc.

The senate adopted a 35 per cent rate on textile machinery not specially provided for. It accepted the finance committee amendment on antimony substituting a sliding scale of rates of 0.02 cents per pound on antimony as regulus or metal. The metal schedule is now completed except for watches and clocks.

Pushing Production of Chrome Iron Alloys

The Rustless Iron Corp. of America, New York, practically wholly owned subsidiary of the International Rustless Iron Corp., is making rapid strides with the development of its chrome iron alloys, produced under the patented processes granted Ronald Wild in 1926, the same patent protection having been previously granted in 32 other steelmaking countries and assigned by the inventor to the International Rustless Iron Corp. during 1926.

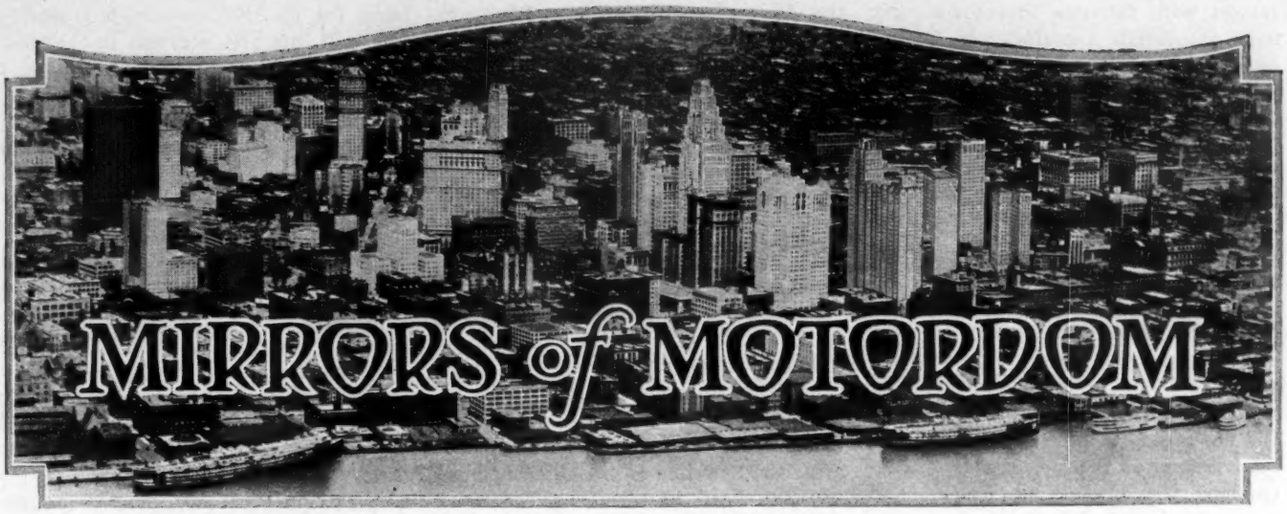
The Wild process effects considerable saving in the cost of production of all iron and steel alloys containing chromium. The higher the percentage of chromium the greater the saving as the chromium is introduced during the steel melting operation in the form of chrome ore costing $24 per ton instead of the introduction of carbon free ferrochrome costing around $400 per ton.

Rustless iron as produced by the Rustless Iron Corp. of America contains varying percentages of chromium according to the purpose for which it is to be used, but the minimum percentage necessary to secure rustless properties is around 12 per cent.

The Rustless Iron Corp. of America also is producing an alloy containing 18 per cent chrome and 8 per cent nickel with the remaining constituent principally iron. This iron is produced under a license from the Chemical Foundation Co. which acquired patents in 1919 originally granted in this country to Prof. Dr. Benno Strauss, chief metallurgist of Krupp. This alloy is more expensive to produce because of its large nickel content but has achieved considerable notoriety because of its adoption and use in the form of ornamental parts in large buildings.

Chrome nickel alloys similar to those produced by the Rustless Iron Corp. of America and sold by this company under the trade name of Defistain Rustless Iron are also produced by other alloy steel companies. This material is sold by these companies under various trade names.

It is reported several interesting adoptions are to be made in the automobile industry because of the great ductility of this chrome nickel alloy and in this event the Rustless Iron Corp. of America anticipates securing a considerable percentage of this business.



Auto Industry Retrenches Until Horizon Clears

* * * * * * * * *

Suspensions Compel Steel Producers To Hold Bag

Detroit, Nov. 12

A STEEL salesman ordinarily given to modesty and accuracy claims to remember when Detroit was the seat of a thriving and prosperous automobile industry. He recalls when the vast concrete and brick structures studding the outlying districts teemed with thousands of workmen, assembling 500,000 cars and trucks — yes, even 600,000 — in a month; when purchasing agents clamored for steel and, on occasion, actually were nice to salesmen.

Of course, not all Detroit is like that. Detroit can take its pessimism or it can leave it. It is easy now to take it but a few, fortunately, are leaving it. Probably no other city in the country has felt so swiftly the blight of the recent convulsion in Wall Street, and the pall of gloom is thick here, yet the forehanded portion of the industry is not depressed.

The immediate effect of the stock market crash has been to "freeze" the automotive industry. A number of important producers were down for inventory and plant rearrangement preparatory to starting on new models this month; they have suspended their programs and held up all material. Those producers already turning out 1930 models have curtailed and scaled down their receipts of material proportionately. The industry is numbed from shock and indecision.

* * *

CHRONOLOGICALLY, the automotive situation is this. From April through August output of passenger cars and trucks declined from 621,347 units to 498,361, or 20 per cent. After Labor Day the slowing-up in retail demand began to back up to the factories, and specifications for steel underwent sharp curtailment. September production of 415,332 units represented a 33 per cent slip from the year's high.

The slide in retail demand continued in October. The season also approached when a number of important producers normally go down for new models. So, by mid-October the industry was the slackest of the year. Final figures for October production will not be availabe for ten days but they undoubtedly will show a drop to about 325,000 units, the lowest since December, 1928.

The forecast in these columns a month ago that the period Oct. 15-Nov. 15 would be the dead spot of the year in automotive production was accurate—so far as it went. When the crash came in Wall Street automotive production had been pretty well deflated; in fact, the realization of it probably helped precipitate the housecleaning. It being said on all sides that the purchasing of automobiles would first feel any contraction of buying power, the industry naturally stopped in its tracks. So the dead spot in production will continue into December.

At this distance November output seems certain to fall well below 300,000 units, the lowest since the 234,116 of last December. However, December brings the obligation to produce new models for the January shows and stock dealers' floors. Hence, next month promises to develop slight improvement over this month. January, then, may witness a relapse pending the verdict of the shows and a clearer discernment of general conditions. At least until middle January the steel industry cannot look to Detroit for tonnage business.

* * *

FOR the steel industry the instantaneous cutting off of most steel requirements here came as a shock despite the steady easing of pressure in recent weeks. A few buyers have taken in the steel that was in process for them, but the great majority have closed their receiving docks and are compelling steel producers to carry the burden. For some this is severe, as it results in increased mill inventories, and in the case of special finishes will require reprocessing.

Overnight the automotive industry has reverted to type. Those purchasing agents for whom the mills extended themselves most to make prompt d e l i v e r i e s in the tight periods earlier in the year have been the first to clamp down the lid. There is no reciprocation of the favors done them, but usually peremptory demands to hold up shipments. Arguments are of no avail, and refusal to accede to the purchasing agents' edicts only means a long and tortuous road back into favor. One mill charges for the storage of heldup material, but never collects!

A few parts makers have been

caught with fair-size inventories, but most automobile manufacturers do not have over ten days' steel on hand. This also describes the pig iron situation, except that those foundries taking in iron by water have of necessity accumulated slight stockpiles. The bright side of this situation for the iron and steel industry is that resumption of automobile production will be reflected immediately in releases.

For the present, the policy of most steelmakers is to lie low. Solicitation when no business is in sight usually is a boomerang. Temporarily at least the downtrend in steel prices here has been halted, as the most generous concessions would elicit no orders, and when the industry is not in a buying mood prices are not discussed.

* * *

DETROIT has suffered as much in a personal, financial way as it has in production. The financial carnage among automotive executives is said to have been fearful and an atmosphere of depression is most logical and reasonable with many motor stocks a third or a fourth of their 1929 high.

Yet, underneath it all, is the feeling, especially among sellers of steel, that the American public will no more forego buying automobiles than it will do without food or shelter. For a short time it may wrest a few extra miles from its old cars, but there is an appeal in a new automobile which is not equalled in any domestic commodity. Stock market losses, it is felt, have been heaviest among prospective buyers of high-price cars. Relatively, the sale of low-price cars should be accentuated.

There is some opinion that 1929 will go down as the last carefree buoyant year of the automobile industry, and that the present financial sobering-up will push the industry across the threshold of maturity. Heretofore plant expansion and car-building programs have been planned with little regard for the ceiling of the retail market. It is agreed that there will always be a market, though a comparatively small one, for high-price cars, but the increasingly severe depreciation being taken by purchasers of medium-price cars seems to be registering.

Ford is acting on this basis. The new model is expected to retain its broad basic market through low price and to entice buyers from higher price ranges through attractiveness of body and mechanical excellence. Of other producers, Hudson-Essex has most diligently cultivated this market. Whatever good showing Chrysler has made in 1929 has been due largely to the low-price DeSoto and Plymouth lines. Of all the General Motors divisions, Olds alone has made a really good showing this year. Buick's new Marquette is a bid for lower-price business, though perhaps not low enough. A more discriminating class of buyers may easily be one sequel to a more sane financial situation.

* * *

LIKE other producers, Ford is watching the situation more closely, but nothing has yet developed to disturb seriously the greatly-expanded production program for 1930. The reduction in price which this department a month ago expected to be announced after the new line is presented appears to have been hastened by the stock market debacle and an effort to be constructive. At this time reductions of $15 to $200 per car would not seem productive of much new business, but they act as a notice to competition that a contest is on.

Ford now is operating four days a week and is assembling about 6000 units daily. This is a reduction of one-third from the 1929 daily peak. October production is given as 177,483 units, compared with 161,305 in September, the longer month accounting for the higher total. At the current rate, Ford's November output will be about 100,000 units.

There is no doubt that the unfavorable retail situation is affecting Ford plans. It is variously reported that up to 500 new models are being produced daily, and that volume output will not be sought until late next month. It is understood that some important parts makers will make no shipments whatever to Ford in December. Some thousands of Ford employes have been laid off, including two-thirds of the personnel at the airplane division, and Ford production the rest of the year, like that of other makers, will be light. Not all of the proposed body changes have yet been approved. There continues reason for believing that Ford in 1930 plans to make the biggest bid for business in its history. Both the new Ford and the new Chevrolet promise to be a surprise.

* * *

CHEVROLET may be considered out of production at least until Dec. 1, though it is taking in some material. Packard has not wholly suspended production but it has held up all of its steel. Buick has made the second cut in a month in its schedule and has dropped to 550 daily. Willys-Overland is not buying any material whatever prior to Dec. 1 and like Chrysler is practically out of production. Hudson-Essex is making a few parts for its 1930 models, but assembly will not be started in earnest before next month. Pontiac-Oakland is holding up on its new line.

Relatively the greatest effort by manufacturers is now expended in moving cars off dealers' floors. In some cities bargain prices are being offered, Hudson-Essex dealers now doing this in Detroit, but this is said to be strictly a dealer and not a factory proposition.

The new Oakland, it is understood, will be an 8-cylinder car.

The new Hudson will be an eight, and at the top of both the Dodge and Chrysler lines will be an eight.

* * *

ONE indication of the new competition in the automobile field is the increasing attention being given to merchandising. Hupp has "gone modern" in the fitments and hardware of its new eight. One of the Dodge models now includes a radio receiving set. The 16-cylinder Cadillac, while not a bid for favor in the volume field, will help cement Cadillac's place in the quality car field.

Even Ford is realizing that cars must be sold. The difference in policy between the day when 15,000,000 Model T's were turned out and a change in lines after 2,000,000 Model A's have been made is noteworthy. The recent reduction in price was one bid for attention. The changed model will be another, and the stress it is reported will be laid on stainless steel will be still another. The new style Ford radiator, the larger hub caps and possibly the lamps and some of the bright work also will be stainless steel. At the outset the chief limitation will be the ability of makers to provide enough material. At full production speed Ford may require as much as 40 tons of stainless steel daily.

Pierce-Arrow is now using stainless steel in nearly 200 small parts, principally exposed bolts, nuts and screw heads, hinges and similar small parts. Cadillac is using 15 pounds per car of a rustless material. DeSoto is rust-proofing its fenders. Chrysler is experimenting with a stainless steel body.

* * *

SOME deductions concerning the trend of competition in the automobile field may be drawn from comparison of seven months retail sales. In the opening seven months of 1929 Ford sold 836,003 Fords and 3942 Lincolns, a grand total of 839,945, according to an authority. This was an increase of 416 per cent over the comparable period of 1928. In the same seven months of the best year

the industry has ever experienced General Motors sold 833,896 cars, or 4 per cent fewer than a year ago.

Of all the General Motors divisions, only Olds showed an increase over 1928. LaSalle sales went up 17 per cent but were practically cancelled by a decline of 16 per cent by Cadillac. Chrysler sales in seven months totaled 229,311, an increase of 14 per cent accounted for largely by the new Plymouth and DeSoto lines. Hudson-Essex at 191,828 showed an increase of 22 per cent, and Willys-Overland with 156,466 sales a gain of 3 per cent.

Auto Steel Loss Offset by Other Users

Toronto, Ont., Nov. 12.—Depression in the automotive industry, while adversely affecting some branches of the iron and steel industry, is not so seriously felt as anticipated, losses from this source having been largely offset by increased sales to other consumers. Steel companies will be affected only to a limited extent as much of the steel used by automobile manufacturers is imported.

Sales of sheets and some of the lighter foundry castings for motor use are falling off, but large bookings on back orders on railway equipment and structural steel orders insure a continuance of activities for the present.

The smelting of iron in forest hearths at Schmalkalden, Germany, dates back to 1100.

Part of Mileage Scale Rates Deferred

Washington, Nov. 12.—Mileage scale freight rates on bars, plates and shapes will not go into effect Dec. 20 as originally ordered by the interstate commerce commission. The commission has reopened the mileage scale case—No. 17,000—on these products and with respect to fourth section order No. 10,900.

In all other respects the commission stands on its decision in the case, affecting practically all iron and steel products in official classification territory—north of the Potomac and Ohio rivers and east of the Mississippi river. The decision to put these rates on a mileage scale basis was made last June 3, but the effective date was postponed from Oct. 20 to Dec. 20.

A hearing on the bar, plate and shape rates, subject to a minimum carload of 80,000 pounds, will be held in New York, Dec. 3, at the Merchants' association rooms.

Declare Extra Dividend

Directors of Joseph T. Ryerson & Son Inc., Chicago, have declared an extra dividend of 50 cents a share on the capital stock, payable Dec. 2 to stockholders of record Nov. 22. In this connection, it was stated by Donald M. Ryerson, chairman of the board of directors, that consolidated sales for the ten months ended Oct. 31, 1929, were $29,328,500, compared with $25,182,282 for the corresponding period of 1928.

World Foreign Trade Accelerates Faster Than During Prewar Years

RECORDING an increase of almost a billion dollars in the export trade of 1928 over that of 1927, at current money values, the fourth annual Armistice Day Accounting of International Trade by the National Foreign Trade council shows a steady growth of the world's exports and a rate of annual increase slightly greater than that prevailing before the war. The advance in the world's foreign trade since 1925 is fully 15 per cent, or an average annual increase of 5 per cent. Between 1900 and 1913 the aggregate growth of the world's exports was about 63 per cent, or slightly less than 5 per cent per year.

The latest figures for 91 nations whose trade represents 95 per cent of current international commerce, place the world's 1928 exports at $32,914,000,000, equivalent to $23,567,000,000 at the 1913 value of the dollar. This compares with 1913 exports for these same nations of $20,005,000,000. They reached their prewar level again for the first time in 1925 with exports of $20,454,000,000, increased to $21,025,000,000 in 1926 and to $22,867,000,000 in 1927. All the council's figures have been adjusted to the 1913 value of the dollar in order to provide a genuine comparison free from factors of inflation.

The restoration of the world to its prewar rate of progress in export growth is largely due to the export trade development since 1925 of three nations—Germany, the United States and Canada. Within the past three years Germany has outstripped all other nations in the advance of her exports. In 1925 they were valued at $1,414,000,000, reckoned at the 1913 valuation of the dollar. In 1928 they reached $2,093,000,000, a gain of $679,000,000, or almost 50 per cent. The increase of the United States in the past three years has also been notable, mounting from $3,147,000,000 in 1925, at the rate of the 1913 dollar, to $3,663,000,000 in 1928, a gain of $516,000,000 or about 17 per cent. Canada has increased her exports in this period by $162,000,000, from $819,000,000 to $981,000,000, or about 18 per cent.

The three nations whose total advances since 1913 are the greatest in amount are the same as were recorded last year, the United States, Canada and Japan. American exports increased between 1913 and 1928 by $1,179,000,000, or 48 per cent, at the 1913 valuation of the dollar; Canada's increased by $520,000,000, or 113 per cent, and Japan's by $341,000,000, of 109 per cent. Although our quantity gain was twice that of Canada and three times that of Japan their advance at more than twice our own rate of growth is a fact that should not escape attention.

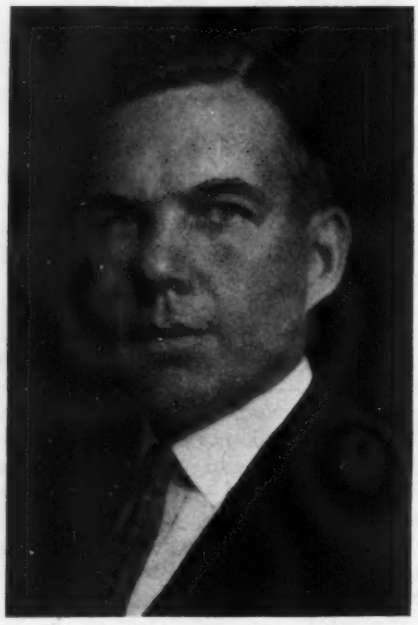
The most significant general increase in export trade during the year was that of the 12 nations of Western Europe. The aggregate export of these nations for 1928 was $9,670,000,000. This was 98½ per cent of the export trade they carried on in 1913, using the strictly realistic comparison of the 1913 value of the dollar. Germany's rapid progress has brought her up to within 87 per cent of her 1913 real exports, great Britain up to 95 per cent, and Belgium up to 86 per cent. All the other nations of Western Europe are doing more export trade than they did before the war with the exception of Holland whose change of method in computing statistics makes exact comparison impossible.

The council's statement continues:

The complete figures for 91 nations show that the world's export trade for 1928 has continued to make substantial gains over preceding years. Roughly, the gains amounted to about 300 millions each in North America and Western Europe, 125 millions in South America and 80 millions in Africa. These were offset by diminished exports during the year of about 60 millions in Asia and 50 millions in Central America. With a slight gain in Eastern Europe and Australasia the net gain for the year of a little less than 700 millions at 1913 valuation is worth about one billion dollars at the 1928 value of the dollar.

Industrial Men in the Day's News

John C. Taylor Jr., Vice President, Taylor-Wharton Iron & Steel Co., High Bridge, N. J.



AT THE age of 36 he becomes second executive officer of the oldest iron and steel industry of the country, only nine years after he became one of its apprentices.

UNDER his supervision, unprofitable lines of three subsidiary companies were replaced with profitable ones, without expenditures for retooling.

HIS rapid rise in business was foreshadowed by his activity in college. During the war he served in the air force.

JOINING the expanding ranks of younger executives, John C. Taylor Jr., as noted briefly in the Sept. 26 issue of IRON TRADE REVIEW, was recently elected vice president of the Taylor-Wharton Iron & Steel Co., High Bridge, N. J. He thus becomes the second executive officer of the oldest company in the iron and steel business in the United States and of the second oldest company with a continuous history in the Western hemisphere.

Mr. Taylor's election to this office comes only nine years after he entered the employ of this company as an apprentice. It is in recognition of his signally successful services in connection with the rebuilding of the business of the company's three subsidiaries, Wm. Wharton Jr. & Co., Tioga Steel & Iron Co. and Philadelphia Roll & Machine Co., all at Easton, Pa. In consummating this program, unprofitable lines have been replaced with profitable ones. This was accomplished without expenditures for retooling, all under Mr. Taylor's supervision.

The parallel of Mr. Taylor's name with that of his company is a mere coincidence. He springs from a family that had no relation whatever to the Taylors responsible for the industry at High Bridge. He was born in Shade Gap, Pa., in 1893, the son of a country merchant. There he early acquired a business training which has been of great benefit to him in the subsequent years. At an early age, he started to work for his father, who sold practically everything the soil yielded in that section of the country, as well as everything needed by those engaged in raising and gathering that yield. The store was operated much like a bank, with the elder Taylor financing the farmers. It largely was a case of exchanging pulpwood, lumber, grain, butter and eggs and other agricultural produce for farm implements, clothing, supplies, etc.

Mr. Taylor attended high school at Mt. Union, Pa. He taught at country schools until the summer of 1913, and then went to Mercersburg academy, where he was graduated in 1914. That fall he entered Princeton university, and was graduated in 1918 as a bachelor of science. While at college he found time to engage in numerous extra-curricular activities. He played on the university baseball and basketball teams, and during his senior year was chairman of the Undergraduate council.

During the World war he spent nine months in the air service and, following demobilization, joined the staff of a tutoring school at Princeton. In March, 1920, Mr. Taylor joined the Taylor-Wharton Iron & Steel Co., being employed as an apprentice in the plants at High Bridge and Easton. His final training was given him in the general sales office of the company in New York, and in sales promotional work at High Bridge. Upon completion of this training course, April 1, 1923, he was assigned to the general sales office at New York, but also worked at times in the Chicago and Boston offices. He spent several months in Canada and also made a survey of the requirements of the Cuban market. June 1,

1924, he was appointed sales manager of the Taylor-Wharton Iron & Steel Co. From Oct. 1, 1928, to June 1, 1929, Mr. Taylor did sales work for these companies in the southwestern oil fields. June 1, 1929, he was made general manager of sales of the Taylor-Wharton Iron & Steel Co. and its subsidiaries. His election as vice president, in charge of sales of all these companies, came Sept. 25, 1929.

Mr. Taylor makes his business headquarters at Easton, and also has his residence in that city.

Men of the Industry

ARTHUR C. ALLSHUL, formerly manager of the Buffalo plant of Joseph T. Ryerson & Son Inc., has been appointed manager of the new unit in the Philadelphia district. As noted in IRON TRADE REVIEW of Nov. 7, the Ryerson company has purchased the business, equipment, and good will of the Penn-Jersey Steel Co. at Camden, N. J. It also is making other arrangements to provide adequate facilities for a comprehensive stock to meet the requirements of the trade in the Philadelphia metropolitan district.

Clarence S. Gedney has been appointed manager of the Buffalo plant to succeed Mr. Allshul. Mr. Gedney has been connected for many years with the specialty sales division of the Ryerson business in the Chicago territory.

* * *

Henry B. Bryans, formerly assistant general manager of the Philadelphia Electric Co., Philadelphia, has been elected vice president.

* * *

Carl A. Miller, for nine years factory superintendent of the Capitol Castings Co., Lansing, Mich., has been named general manager to succeed the late James J. Carey.

* * *

R. M. Laning, superintendent of the Monroe, Mich., plant of the Newton Steel Co., Newton Falls, O., has been added to the board of directors of the Peoples Savings & Loan association, Monroe.

* * *

Frank E. Grant, formerly assistant factory sales manager of the Gabriel Snubber Mfg. Co., Detroit, has become affiliated with the brake sales department of the Midland Steel Products Co., Cleveland and Detroit.

* * *

Thomas J. Little Jr., for the past three years chief engineer of the Marmon Motor Car Co., Indianapolis, has resigned from that post effective Jan. 1, to enter the professional field as engineering counsel and industrialist. George Freers, for 17 years a member of the Marmon engineering staff and for five years assistant chief engineer, has been appointed chief engineer. Mr. Little will maintain offices both in Detroit and Indianapolis.

* * *

Gordon Thornton, with a wide electrical tool experience in the Cleveland territory, has been added to the Cleveland sales staff of the United States

FRED A. HANLIN
Who, as noted in IRON TRADE REVIEW of Oct. 31 was elected vice president of Weirton Steel Co., Weirton, W. Va.

Electrical Tool Co., Cincinnati, manufacturer of portable electric drills, grinders, buffers, etc.

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J. E. Edds, formerly general superintendent of Goulds Pumps Inc., Seneca Falls, N. Y., is now superintendent of No. 2 plant.

Nelson B. Delavan, formerly assistant general manager, now is merchandising manager.

Hamilton Garnsey, formerly foundry engineer, now is assistant to the general manager.

* * *

Ira B. Lanphier, for more than eight years identified with the Forest Products laboratory at Madison, Wis., a research branch of the forest service, United States department of agriculture, has become affiliated as director with the Package Research laboratory, Rockaway, N. J. He will further the development of wire-bound boxes.

* * *

Joseph P. Fletcher, manager of the Buffalo office of the Independent Pneumatic Tool Co., 600 West Jackson boulevard, Chicago, has been appointed Philadelphia office manager to succeed the late A. L. Schuhl.

W. O. Becker, who has been operating out of the Toronto, Ont., office, has been appointed manager at Buffalo to succeed Mr. Fletcher.

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Charles O. Hadly, who as noted in the Feb. 7 and 14 issues of IRON TRADE REVIEW resigned as vice president in charge of sales of the Alan Wood Steel Co., Philadelphia, recently has become associated with the United States Steel Corp., with headquarters at the executive offices, 71 Broadway, New York. As yet no announcement has been made regarding the character of his duties.

* * *

Jack Abbott, furnace builder, specializing in porcelain enameling installations for the Ferro Enameling Co. of Canada Ltd., has been transferred to the furnace building staff of the Ferro Enamel Supply Co., Cleveland.

J. R. Burt recently resigned from that staff to assume charge of the new enameling plant of the Mullins Mfg. Corp., Salem, O.

* * *

Dr. Harvey N. Davis, president of Stevens Institute of Technology, Hoboken, N. J., has been appointed a manager of American Society of Mechanical Engineers by the council to fill the unexpired term of L. B. McMillan, killed Aug. 9 in an airplane accident. Robert M. Gates has been designated to take Mr. McMillan's place as council representative on the finance committee of the

society and also on the executive committee of the council.

* * *

Otto Abel has returned to the Sweet & Doyle Foundry & Machine Co., Troy, N. Y., as foundry superintendent, a position which he formerly held with that company.

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J. D. Waddell, vice president of the Empire Steel Corp., Niles, O., was re-elected president of the Trumbull County Manufacturers' association, at a meeting of the executive committee, held at Warren, O.

* * *

Norman Leonhard, for nine years superintendent of the pattern depart-

A. C. ALLSHUL

ment of the Kissel Motor Car Co., Hartford, Wis., has resigned to become active in the ownership and management of the Waukesha Pattern Works, Waukesha, Wis., effective Nov. 1.

* * *

H. M. Davison has been made manager of excavator sales for the Harnischfeger Corp. with headquarters at Milwaukee, being transferred from New York, where he was director of sales in eastern territory. Mr. Davison has been located at New York for two years, having previously been identified with the Hayward Co.

* * *

Glen Muffly, consulting engineer for Copeland Products Inc., Detroit, has also been appointed to the executive staff of American Cirrus Engines Inc., a unit of Allied Motor Industries Inc., recently removed from Belleville, N. J., to the former Wills Ste. Claire plant at Marysville, Mich., where aircraft engines will be produced. Mr. Muffly formerly was with the Lees-Bradner Co., Cleveland, manufacturer of gear generating machines, as sales manager and before going with Copeland was employed by the General Motors Corp. in making market surveys.

* * *

E. D. Cowlin, formerly New York manager of the Reliance Mfg. Co., Massillon and Mansfield, O., manufacturer of spring washers and cold-finished alloy steel, has been appointed general sales manager. Beginning Jan. 1 he will remove his headquarters to Massillon, the main office of the company.

* * *

E. E. Bowman, formerly with the National Tube Co., Kewanee, Ill., has been appointed secretary-treasurer of the Willard Storage Battery Co., Los Angeles.

Charles H. Ketridge, formerly with the Boss Mfg. Co., Kewaunee, Ill., has been appointed purchasing agent and traffic manager of the Willard company at Los Angeles.

* * *

Frank P. Walsh has been placed in charge of a new office recently opened at 1442 Syndicate Trust building, St. Louis, by the Whiting Corp., Harvey, Ill. He has been connected with the estimating and sales departments of the Whiting Corp., for about 14 years. He will have charge of the territory which includes southern Illinois, most of Missouri, all of Arkansas, Oklahoma, Western Iowa and Nebraska.

* * *

R. L. Collier, engaged for three years in trade organization work in the electrical field, has been appointed assistant to Granville P. Rogers, managing director of the Steel Founders' Society of America, 932 Graybar building, New York. Mr. Collier was graduated from Ohio State university and for some time conducted special work for a Cleveland public utility company.

* * *

Carl C. Gibbs, manager of the Indianapolis plant of the National Malleable & Steel Castings Co., Cleveland, has been transferred to Cleveland as assistant to Henry F. Pope, president. He is succeeded at Indianapolis by Stowell C. Wasson. Mr. Gibbs has been identified with the National company for 23 years, starting in 1906 in Indianapolis, where he remained in the sales department until his transfer to Cleveland in 1919 as sales agent. In July, 1920, he returned to Indianapolis to fill the vacancy caused by the death of A. S. Bixby.

* * *

William J. Grede, recently relected a director of the Gray Iron institute for a three year period, is president of the Liberty Foundry Co., Wauwatosa, Wis. and the Spring City Foundry Co., Waukesha, Wis. Mr. Grede was born in Milwaukee and attended the University of Wisconsin. He was graduated in 1917 and entered the employ of the Wagner Castings Co., Decatur, Ill. In 1920 he took over the entire assets of the Liberty Foundry Co. Later he and his associates acquired the Spring City Foundry Co. and Mr. Grede was elected president of both organizations. He has been active in foundry circles, being one of the founders of the Wisconsin Gray Iron group and is a

C. S. GEDNEY

member of the cost committee of the American Foundrymen's association.

* * *

Ralph M. Hill, president and manager of the East St. Louis Castings Co., East St. Louis, Ill., recently was elected a director of the Gray Iron institute. Mr. Hill was graduated from Purdue university in 1907 and entered the employ of the National Malleable & Steel Castings Co., Indianapolis. He resigned to accept a position with the General Electric Co. at Erie, Pa. Later he was connected with the Standard Malleable Iron Co., Muskegon, Mich. and the Missouri Malleable Iron Co., East St. Louis, Ill. In 1920 when the East St. Louis Castings Co. was organized Mr. Hill became president and manager of the new company.

* * *

Walter C. Hecker was elected president of the Curtis Mfg. Co., St. Louis

(*Concluded on Page* 1285)

Obituaries

JOSEPH W. Donner, 35, vice president in charge of operations of the Donner Steel Co. Inc., Buffalo, and son of William H. Donner its president, died Nov. 9 at his home in Middlesex road, that city, following an illness of several months. He was born July 17, 1894, at Columbus, Ind., and was educated at private schools. He was graduated from Princeton university in 1917 with a degree of Litt. B. and immediately entered the employ of the Donner company at Buffalo, beginning as an inspector and mastering all details of the business. He became engineer of tests, then assistant superintendent and in January 1926, was appointed general superintendent. He was elected vice president in May, 1929. He was a member of the Saturn, Country, Buffalo, Tennis and Squash clubs, all of Buffalo, and also was a member of the American Society for Steel Treating. He had been a director of the company since 1917.

* * *

William M. Sternberg Sr., 80, inventor and founder of the Sterling Motor Truck Co., Milwaukee, died recently in that city.

* * *

William Bennett Carey, 50, vice president of the Fisher Machine & Tool Co., Buffalo, died suddenly Nov. 10.

* * *

Charles W. Morse, 55, New England manager for the Automatic Sprinkler Co., Cleveland, fell dead at the Boston office of the company Nov. 4.

* * *

Harry S. Graham, president, Washington Iron Works, Los Angeles, died Oct. 8. He was one of the pioneer foundrymen of Los Angeles and with his brother E. H. Graham founded the company.

* * *

Harry C. Haight, president and treasurer of the American Forge & Machine Co., Canton, O., died Nov. 4, following a brief illness. He had been affiliated with the company since 1909 and also was vice president and treasurer of the National Horseshoe Co., Canton, a subsidiary.

* * *

George S. Wilkes, 94 senior member in the iron manufacturing firm of Wilkes & Waterous Brantford, Ont., died at his home in that city. He formerly was member of the Brantford board of trade and was a member of the Canadian Niagara Falls park commission.

* * *

William E. Gerlinger, 55, founder of the former Gerlinger Electric Steel Casting Co., Milwaukee, and more recently president of the Gerlinger Brass & Aluminum Foundry Co., died Nov. 3. He was born in Marysville, Kans., but had lived in Milwaukee since childhood. He established the Gerlinger steel foundry in 1902 as one of the first to use the electric furnace. After disposing of his interests several years ago, he engaged in brass and aluminum casting.

* * *

Charles S. Le Poer Trench, 75, editor of *American Metal Market*, senior partner in Charles S. Trench & Co., New York, and president of the British Empire chamber of commerce for the last three years, died late last week in St. John's hospital, Brooklyn, N. Y., after a brief illness. Mr. Trench is survived by his two sons, C. S. J. and S. P. Trench, associated with him in the management of Charles S. Trench & Co. and *American Metal Market*, at 89 Fulton street, New York.

* * *

W. J. Rattle, 77, pioneer iron ore analyst of the Cleveland district, died Nov. 5. He was graduated from the Sheffield Scientific school, Yale university in 1874. Three years later he located in Cleveland, establishing the first firm of analytical iron ore chemists in that city. Before the war he was called to Russia twice by the Imperial government to consult on the development of the Russian iron ore industries. His work led him into many other foreign countries as consultant in the same field. He retired about a year ago on account of failing health. He was a member of the Union club, Cleveland and many professional societies.

* * *

Henry Aylett Coles, 59, district manager at Atlanta, Ga., for the Westinghouse Electric & Mfg. C., East Pittsburgh, Pa., since 1914, died of heart failure recently in New Orleans. He was a veteran in the Westinghouse service, having joined the company while its plant was located in Garrison alley, Pittsburgh. He was born in Tallwood, Albemarle county, Va., Aug. 17, 1870. His higher education consisted of private instruction and one year at Roanoke college, followed by three years in an engineering course at the University of Virginia. After graduating in 1891, Mr. Coles spent six months operating an electric light plant in Charlottesville, Va., and then entered the employ of the Edison General Electric Co. He left to enter the Westinghouse organization and in June, 1897, was transferred to the sales department, being stationed at Atlanta. In 1911 he was made manager of the railway and lighting division there and in September, 1914, was promoted to be district manager.

Men of Industry

(*Concluded from Page* 1284)

and its subsidiary companies, including the Curtis Pneumatic Machinery Co., Curtis Saw Co., and Curtis Clutch Disc Co. He formerly was senior vice president.

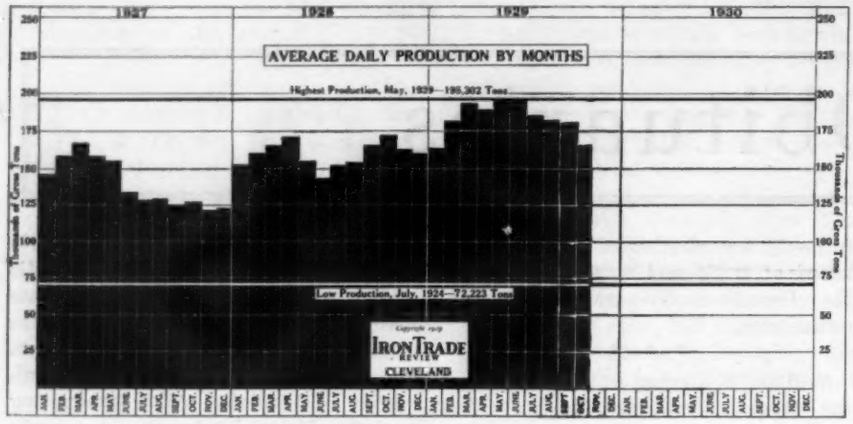
E. H. Steedman, retiring president retains his place on the board of directors.

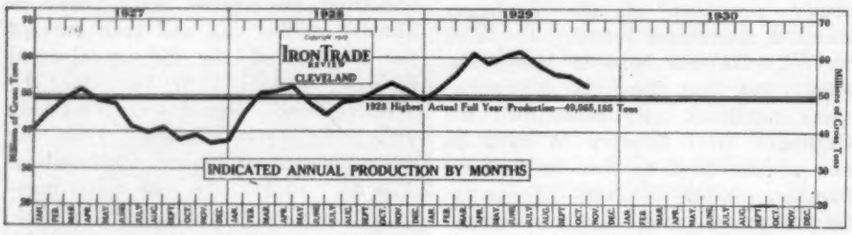
* * *

L. A. Dunn has been appointed superintendent of the malleable foundry of the Erie, Pa., plant of the General Electric Co. He formerly was connected with the Eastern Malleable Iron Co., Naugatuck, Conn., at the Wilmington, Del., plant; Laconia Car Co., Laconia, N. H.; Temple Malleable Iron and Steel Co., Temple, Pa.; Acme Steel & Malleable Iron Co., and Pratt & Letchworth Co., both of Buffalo.

* * *

R. J. McSherry, formerly foundry superintendent, Oliver Chilled Plow Works, South Bend, Ind., has been appointed foundry superintendent of the Studebaker Corp., South Bend Ind. Mr. McSherry prior to his connection with the Oliver company was affiliated with the Hercules Mfg. Co., Evansville, Ind., as foundry superintendent and with the Hillside Flourspar Mines, Chicago. He was born in Rockford, Ill., in 1888 and received his engineer education at the Wisconsin university. Mr. McSherry served his apprenticeship with the Stover Mfg. Co., Freeport, Ill.





Ingot Rate Off 8 Per Cent

STEEL ingot production in October continued the slide from the year's high in May and was at the lowest daily rate since January. Also, October was the first month this year not to register a higher daily rate than the corresponding month of 1928.

The October rate, as computed by the American Iron and Steel institute, was 167,098 gross tons, compared with 180,435 tons in September, 195,302 tons at the year's high in May, and 172,221 tons in October, 1928.

October production of open-hearth and bessemer ingots was 4,511,650 tons, compared with 4,510,879 tons in September and 4,649,968 tons last October. The October total gave the industry an operating rate of 85.2 per cent, contrasted with 92 per cent in September and 91.3 per cent last October.

The decline in the October rate did not affect the record for the 10-month period. To date in 1929 ingot production has averaged 183,673 tons a day, against only 159,924 tons in the same period of 1928. The 10-month total for this year, a record, is 47,755,054 tons, compared with 41,580,142 tons in the first ten months of 1928.

At the rate ingots were being made in October, 1929, would be a 52,000,000-ton year. The highest annual total on record is the 49,865,185 tons of 1928.

Steel Ingot Production—1928-1929

94.51 Per Cent of Industry Reporting

Gross Tons

1928	Open-hearth	Bessemer	Monthly output companies reporting	Calculated monthly output all companies	Number of working days	Approximate daily output all companies	Per cent of operation
Jan.	3,273,294	498,691	3,771,985	3,990,902	26	153,496	81.42
Feb.	3,300,407	521,250	3,821,657	4,043,457	25	161,738	85.80
March	3,692,648	567,330	4,259,978	4,507,217	27	166,934	88.55
April	3,505,104	564,110	4,069,214	4,305,382	25	172,215	91.35
May	3,394,301	582,128	3,976,429	4,207,212	27	155,823	82.66
June	3,010,341	528,193	3,538,534	3,743,903	26	143,996	76.38
July	3,068,257	528,588	3,596,845	3,805,598	25	152,224	80.75
Aug.	3,379,625	569,771	3,949,396	4,178,610	27	154,763	82.10
Sept.	3,375,654	544,710	3,920,364	4,147,893	25	165,916	88.01
Oct.	3,795,800	599,098	4,394,898	4,649,968	27	172,221	91.36
10 mos.	33,795,431	5,503,869	39,299,300	41,580,142	260	159,924	84.83
Nov.	3,442,112	590,669	4,032,781	4,266,835	26	164,109	87.05
Dec.	3,301,114	496,679	3,797,793	4,018,208	25	160,728	85.26
Total	40,538,657	6,501,217	47,129,874	49,865,185	311	160,338	85.05
1929							
Jan.	3,694,218	549,616	4,243,834	4,490,354	27	166,309	84.80
Feb.	3,599,224	489,279	4,088,503	4,326,000	24	180,250	91.91
March	4,183,869	596,691	4,780,560	5,058,258	26	194,548	99.20
April	4,026,576	640,351	4,666,927	4,938,025	26	189,924	96.84
May	4,276,186	707,484	4,983,670	5,273,167	27	195,302	99.59
June	3,990,798	622,585	4,613,383	4,881,370	25	195,255	99.56
July	3,922,532	649,950	4,572,482	4,838,093	26	186,080	94.88
Aug.	3,988,729	668,023	4,656,752	4,927,258	27	182,491	93.05
Sept.	3,627,639	635,593	4,263,232	4,510,879	25	180,435	92.01
Oct.	3,619,432	644,528	4,263,960	4,511,650	27	167,098	85.21
10 mos.	38,929,203	6,204,100	45,133,303	47,755,054	260	183,673	93.66

Figures exclude crucible and electric ingots. Operation percentages for 1928 are based on an annual open-hearth and bessemer steel ingot capacity of 58,627,910 tons as of Dec. 31, 1927; 1929 percentages based on capacity of 60,990,810 tons as of Dec. 31, 1928.

Form National Steel Co.

Establishment of the National Steel Co., holding company for certain subsidiaries of the M. A. Hanna Co., Cleveland, Great Lakes Steel Corp., Detroit, and Weirton Steel Co., Weirton, W. Va., has become an accomplished fact through the filing of incorporation papers in Delaware.

National Steel Co. will have assets aggregating in excess of $150,000,000 and will be formed through the exchange of securities. The stock transfers are to be completed by Nov. 30. Properties involved in the merger will come under control of the new organization Dec. 1.

Executive control of the holding company will be vested in Ernest T. Weir, president of Weirton Steel Co., as chairman of the board; George M. Humphrey, president of M. A. Hanna Co., as chairman of the executive committee, and George R. Fink, president of Great Lakes Steel Corp., as president. Election of these officers and formal organization of the holding company is expected to take place about Dec. 1. Headquarters of the National Steel Co. will be in Wilmington, Del., with offices in Cleveland, Detroit and Pittsburgh.

Sponsors Publication

The first issue of Isolation, a publication devoted to the scientific, practical and economical application and study of materials and methods of deadening and eliminating vibration and noise, is being distributed by the Korfund Co., Inc., 235 East Forty-second street, New York, specialists in the isolation of vibration and noise. The magazine will be published quarterly and copies may be received gratis by forwarding name and address to the company.

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

CHAPMAN-STEIN CO., Mt. Vernon, O., has booked several large orders recently. Great Lakes Steel Corp., Detroit, has placed its order for two continuous billet heating furnaces with capacity for 45 tons per hour for its 20-inch mill and one of 50-ton capacity for its 14-inch mill. Weirton Steel Co., Weirton, W. Va., has ordered a continuous slab heating furnace for its 48-inch strip mill, making five of this type from this maker. Otis Steel Co. has bought an installation of one-way-fired soaking pits with Blaw-Knox preheater. Bourne-Fuller Co. has contracted for the same type of soaking pits for its Upson works at Cleveland. Corrigan, McKinney Steel Co., Cleveland, has ordered a 7-hole installation of the same type of equipment, with refractory tile recuperator. The one-way-fired soaking pit developed by the Chapman-Stein Co. was introduced in this country about three years ago and has been adopted by a large number of steel producers.

* * *

IVERS CHROME & METAL PLATING CO., Detroit, has been formed to do chrome plating on steel and chromium plating of tools.

* * *

AMERICAN CABLE CO. has moved its Chicago offices to the recently completed *Chicago Daily News* building. The former address was 160 North La Salle street; the new is 1765, 400 West Madison street.

* * *

BENJ. H. RHYNEARSON CO., Indianapolis, dealer in new and used machine tools and factory equipment, has moved to 516 West McCarty street, where offices and warehouse will be maintained.

* * *

HUDSON VALLEY FUEL CORP., Troy, N. Y., is the name adopted by the Hudson Valley Coke & Products Corp., the latter corporation being dissolved. Obligations and accounts due the latter will be assumed by the former.

* * *

CAPITOL STAMPINGS CO. has been formed at Indianapolis to do light stamping, tool and die work, under management of C. R. Swenson, formerly connected with the Oakes Mfg. Co. and later with the Indiana Press & Steel Co.

* * *

KELLAM & MOORE FOUNDRY CO., Park street, High Point, N. C., has started production of gray iron, brass and aluminum castings in the plant it has leased from the Industrial Electric & Machine Co. Its output is for the jobbing trade. C. E. Kellam is in charge.

* * *

READING CHAIN & BLOCK CORP., Reading, Pa., has appointed Murry Jacobs Co., 554 South Pedro street, Los Angeles, its representative in southern California. Harry T. Lynan will be in charge of the office and a stock of chain blocks will be carried.

* * *

SERVICE FOUNDRY CO., New Orleans, La., recently incorporated to manufacture gray iron, bronze and aluminum castings for the jobbing trade, has started production. It has a new plant, 125 x 127 feet, at 1153 South Cedar street. Morris J. Rabe is in charge.

* * *

FOSTORIA PRESSED STEEL CORP., Fostoria, O., has completed a warehouse at Fostoria and has added warehouse facilities at Atlanta, Ga., Dallas, Tex., and Chicago. C. E. Pifer is president and general manager and R. V. Carter is treasurer.

* * *

STEEL PLATE PRODUCTS CO., Pottstown, Pa., announces a change in sales and purchasing policy effective Nov. 16, 1929, when these functions will be resumed by the home organization. For some months sales and purchasing have been handled through the agency of Plate Fabrications Inc. with offices in New York, Philadelphia and other cities.

* * *

CUTLER-HAMMER INC., Milwaukee, has moved its district sales office at St. Louis from 611 Olive street to 1914 Washington avenue. A warehouse has been established at St. Louis where a stock of standard motor control and wiring devices will be carried, at the same address as the office. The warehouse facilities occupy about 4000 square feet. The St. Louis office serves Kansas, Missouri, Oklahoma, Arkansas, Louisiana, Texas, southern Illinois, southern New Mexico and parts of Tennessee, Kentucky and Indiana.

* * *

FERRO ENAMELING CO., Cleveland, is establishing a smelting plant at Rotterdam, Holland, for the production of uniform porcelain frits for porcelain enameling on sheet steel and cast iron. The Ferro Enameling Co. of Holland has been formed to operate this plant, under direction of Zeno Duervorst. Harry D. Cushman, president of Ferro Enameling Co., and J. T. Irwin, research engineer, have gone to Holland to supervise construction of the new equipment. The same company is installing a similar plant at Ottawa, Canada, for the Ferro Enameling Co. of Canada, which will be managed by Major Wilfred Mayor.

* * *

S. S. & J. H. HUGHES INC. has been incorporated at Cleveland with offices at 1714 East Twelfth street to act as manufacturer's agent and distributor. It will handle products of the Williams Alloy Products Co., Elyria, O., in Ohio, western Pennsylvania, lower Michigan, West Virginia and Kentucky. S. S. Hughes for many years was associated with the pig iron department of the Corrigan, McKinney Steel Co. J. E. Hughes was in the sales department of the Carnegie Steel Co. for many years and later was manager of the steel tube department of the Timken Roller Bearing Co., Canton, O.

* * *

LAKESIDE MALLEABLE CASTING CO., Twenty-third and Clark streets, Racine, Wis., is building a shop addition, 60 x 80 feet, and an addition to the pattern storage vault, 40 x 60 feet. The plant is now doing all of the work formerly done by the Wisconsin Malleable Iron Co., Milwaukee, the shop of which was so badly damaged by fire in neighboring industries that it was rendered useless. A decision as to rebuilding the Milwaukee plant will not be made before next spring. The ownership of the Milwaukee and Racine concerns is more or

less identical. A considerable number of employes of the Milwaukee foundry are now at work in the Racine plant.

* * *

UNIVERSAL HEATER MFG. CO., St. Louis, has changed its name to Universal Stove Corp.

* * *

ST. LOUIS IRON STORE, 700 Cass avenue, St. Louis, is liquidating its assets and will retire from business.

* * *

STAR HEATING & AMERICAN FIRE ESCAPE CO., St. Louis, has been consolidated with Langenberg Mfg. Co. of that city.

* * *

RAMSEY MFG. CORP. is the new name for Ramsey Accessories Mfg. Co., St. Louis, manufacturer of piston rings and auto accessories.

* * *

D H. COHEN, INC., St. Louis, has leased a yard and office at First and Wright streets for handling of iron and steel scrap.

* * *

MILLER FOUNDRY CO., Columbus, O., is building an addition to its foundry, adding about 6000 square feet of floor space. Modern equipment has been ordered.

* * *

IRON PRODUCTS CORP., LaCrosse, Wis., is preparing for production of a caterpillar truck drive assembly which it has developed. Loads to 25 tons are possible for trucks equipped with this drive.

* * *

MISSOURI ROLLING MILL CORP., St. Louis, has completed a new plant for the manufacture of steel fence posts and a special division has been formed to handle this product.

* * *

REVERE COPPER & BRASS INC., Taunton, Mass., is the name adopted by the Republic Brass Corp. to perpetuate the name of Revere in the industry and in the very business which Paul Revere founded in 1801.

* * *

BERSTED MFG. CO, West Sixty-fifth street and Fifty-second avenue, Chicago, manufacturer of various metal products, has purchased the property it has been occupying, including a manufacturing building of 40,000 square feet of working space.

* * *

WESTCOTT CHUCK CO., Oneida, N. Y., has appointed a number of representatives. G. L. Hunt, Philadelphia Bourse building, Philadelphia, will cover eastern Pennsylvania, Maryland, Delaware and southern New Jersey. Other appointments include: Noxsel-Stroman Co., Buffalo; S. A. Dinsmore, Chicago; K. D. Carlson Co., Los Angeles and San Francisco; F. A. O'Donnell, Pittsburgh. Warehouse stocks are carried at 560 West Washington street, Chicago, and South End Warehouse Co., San Francisco.

* * *

LITTLE GIANT PUNCH & SHEAR CO., Sparta, Ill., owned by T. H. Sproul and C. E. Sproul of Sparta and W. H. Pinkerton of St. Louis, has been sold to the T. J. Gundlach Machine Co., Belleville, Ill., and equipment moved to the plant of the latter. The company was formed in 1904.

* * *

GENERAL REFRACTORIES CO., Philadelphia, has appointed Harris Pump & Supply Co., Pittsburgh, its representative for the sale of high temperature cement in the Pittsburgh district, covering Pennsylvania as far east as Williamsport. It will also cover the eastern edge of Ohio and western Maryland.

* * *

PENNSYLVANIA FABRICATION CO., Verona, Pa., recently formed to take over the plant of the Bollinger-Andrews Construction Co., has installed new equipment for fabricating steel and the main plant has been put in full production. A line of steel specialties is being added. Theo. S. See is president and general manager.

* * *

FATE-ROOT-HEATH CO., Plymouth Locomotive Works, Plymouth, O., manufacturer of Industrial and railway locomotives, has completed an additional unit, of steel and brick construction. It is being equipped for production of gear drive and diesel locomotives, production of which will be doubled. The company also produces gas electric and diesel electric locomotives from 20 to 100 tons.

* * *

GEORGE H. SMITH STEEL CASTING CO., 500 Clinton street, Milwaukee, and its subsidiary, the Trackson Co., have purchased a 21-acre site at Chase street and Holt avenue, at the southern city limits of Milwaukee. Initial construction work on a new plant will begin about March 15. Besides giving the steel casting division added floor space, the new plant will make possible the centralization of various production units of the Trackson Co., organized six years ago to manufacture a crawler attachment for tractors, but now building loaders, shovels, bulldozers and cranes for tractor mounting. The Smith company was established in 1898 and is one of the oldest operating steel casting concerns west of Pittsburgh. Its principal business is to supply parts to manufacturers of construction equipment, such as track shoes, sprockets, dipper teeth, bucket lips, gears, frame castings, etc. The company pioneered and still specializes in the production of dynamo steel, which has high magnetic permeability.

* * *

WHITIN MACHINE WORKS, Whitinsville, Mass., builder of textile machinery, and Oscar Kohorn & Co., Chemnitz, Germany, manufacturers of machinery for production of rayon, have formed an organization for the sale and distribution of this equipment in the United States. The combination will be known as the Whitin Kohorn Co. Inc., with offices at 342 Madison Avenue, New York.

* * *

INDIAN MOTORCYCLE CO., Springfield, Mass., in reorganization action has named the following officers: J. Russell Waite, president, re-elected; directors, Henry C. Dodge, Norman T. Bolles, William F. Tracy, Archer R. Simpson, Arthur G. Dickson and Roy D. Lane. Control of the company has been transferred from the Charles A. Levine interests to local hands. Earlier plans indicated the company would enter the airplane manufacturing field, but continuation of the production of motorcycles and outboard motors is now likely.

* * *

EASTERN CORP., New York, has been organized to take over the conveyor business of Eastern Steel Castings, Newark, N. J., and manufacture and sell various types of conveyors, with a general engineering service to the foundry and allied industries. The company has opened offices in the Graybar building on Lexington avenue, New York, and has secured the manufacturing facilities of a large steel fabricating plant at Hudson, N. Y. This includes a forge shop, structural steel fabricating shop and foundry. It is at present operated by the Gifford Wood Corp., New York, manufacturer of ice and coal handling machinery. Officers of the Eastern Corp. are E. F. Miltenberger, president; Benedict Gifford, vice president; and Earle Welborn, secretary-treasurer. The directors are: Messrs. Miltenberger and Gifford, W. D. Sargent, president, Eastern Steel Castings, Newark, N. J., and director of several other companies, including the American Brake Shoe & Foundry Co., New York; American Manganese Steel Co., Chicago, and American Steel Foundries, Chicago; Henry F. Otto, Albert T. Otto Co., New York, importers, and A. Thornton Baker, Kelley Converse & Co., New York, investment brokers.

Pig Iron Position Best In Britain

Continent Fears Aggressive American Attitude in Export Markets as Sequel to Stock Market Break—No Cut in Entente Steel Quotas

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, Nov. 12.—(*By Radio*)—Pig iron is the strongest section of the British iron and steel industry. Midland furnaces are booking advance orders from foundries. The basic iron situation is unsatisfactory. Middlesbrough domestic and export demand is good, October exports having totaled 16,877 tons.

Steel orders are coming more freely from the shipbuilding and constructional industries. The Staffordshire iron trade is satisfactory. The Barrow furnaces have orders until next spring. Railroad steel orders are improving. Demand for galvanized sheets is slightly heavier, and for tin plate is fair.

Brussels reports the continental steel entente decision to reduce output is completely reversed. The price tendency is now a rising one. Aggressive American competition in export markets is feared, owing to the stock market slump. Berlin reports slack business. The expiring date of all German syndicates has been brought to Jan. 30 with renewal generally expected. Paris reports the domestic market is maintained.

October pig iron production in Great Britain was 680,000 tons, compared with 664,600 tons in September, showing a slight reduction on a daily average basis. Last October only 540,000 tons was made, October steel ingot output in Great Britain at 850,000 tons showed a slight drop from the 847,900 tons of September, when contrasted on a daily basis. In October, 1928, output of ingots was 750,000 tons.

European Market Dull as World Delays Buying

LONDON, Nov. 1—(*European Staff Service*)—Reports from all over Europe are to the effect that overseas export markets are dull and that, following the active inquiries received during the first part of the year, consumers now are maintaining an attitude of reserve. There is a good deal of competition for business, and this competition also exists in the European markets themselves.

With regard to Great Britain, the weekly report of the London Iron and Steel exchange states: "In Scotland, however, the market has been disturbed by the importation of Indian and continental iron against low-priced contracts entered into some weeks ago. Trading in semifinished steel has been irregular, and British works are experiencing keen competition from continental manufacturers, with the result that some works find business difficult to obtain.

Continental quotations now have reached the lowest level since the beginning of the year. Foundry pig iron, 2.5 to 3 per cent silicon, is quoted at between £3 8s and £3 10s ($16.45 and $16.95) f.o.b. Antwerp. Continental sheet bars can be delivered in the Birmingham district at £5 10s ($26.60), merchant bars at £6 8s ($31), and beams at £6 4s ($30), the British prices being £6 5s ($30.30) for sheet bars, and £8 2s 6d ($39.45) for bars and beams. Of course, British buyers who undertake to use British steel exclusively have

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, November 11	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3, Silicon 2.50-3.00	$17.69	3 12 6*	$17.08	3 10 0	$17.08	3 10 0	$17.56	3 12 0
Basic-bessemer	16.71	3 8 6†	16.59	3 8 0	16.59	3 8 0	16.84	3 9 0
Hematite, Phosphorus 0.02-0.05	18.79	3 17 0	24.82	630*	.....	.....	17.81	3 13 0
SEMIFINISHED STEEL								
Billets	$30.50	6 5 0	$22.69	4 13 0	$22.69	4 13 0	$22.45	4 12 0
Wire rods	41.48	8 10 0	31.11	6 7 6	31.11	6 7 6	30.50	6 5 0
FINISHED STEEL								
Standard rails	$40.26	8 5 0	$31.72	6 10 0	$31.72	6 10 0	$32.21	6 12 0
Merchant bars	1.74c	8 0 0	.94c	4 5 6	.94c	4 5 6	1.13c	5 2 6
Structural shapes	1.60c	7 7 6	1.09c	4 19 3	1.09c	4 19 3	1.08c	4 18 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.38c	6 5 6	1.38c	6 5 6	1.36c	6 4 0
Sheets, black, 24 gage	2.17c	10 0 0	2.37c	10 15 0	2.37c	10 15 0	2.33c	10 12 0
Sheets, galvanized, 24 gage, corrugated	2.82c	13 0 0	2.87c	13 1 3	2.87c	13 1 3	2.97c	13 10 0
Bands and strips	2.17c	10 0 0	1.24c	5 12 6	1.24c	5 12 6	1.24c	5 12 6
Plain wire, base	2.06c	9 10 0	1.60c	7 5 0	1.60c	7 5 0	1.62c	7 7 0
Galvanized wire, base	3.04c	14 0 0	2.01c	9 2 6	2.01c	9 2 6	1.98c	9 0 0
Wire nails, base	2.39c	11 0 0	1.71c	7 15 6	1.71c	7 15 6	1.71c	7 15 0
Tin plate, base box 108 pounds	$ 4.64	0 19 0	.....	.....	.....	.....	$9.02	1 17 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs			Francs		Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$17.69	3 12 6	$18.72	475(2)	$17.30	620	$20.34	85
Basic pig iron	16.71	3 8 6	20.09	510(1)	16.46	590	21.78	91
Furnace coke	4.39	0 18 0	6.61	168	5.86	210	5.15	21.50
Billets	31.11	6 7 6	24.43	620	24.83	890	28.95	121
Standard rails	1.79c	8 5 0	1.46c	810	1.63c	1,250	1.53c	140
Merchant bars	1.79c	8 5 0	1.32c	735	1.23c	945	1.54c	141
Shapes	1.76c	8 2 6	1.26c	700	1.20c	920	1.50c	138
Plates ship, bridge and tank	1.93c	8 17 6‡	1.46c	820	1.46c	1,120	1.72c	158
Sheets, black, 24-gage	2.28c	10 10 0	2.87c	1,595	2.50c	1,920	2.45c	225
Sheets, galvanized 24 gage, corrugated	2.85c	13 2 6	3.55c	1,970	3.19c	2,450	3.81c	350
Plain wire	2.06c	9 10 0	1.94c	1,075	2.15c	1,650	2.45c	225
Bands and Strips	2.17c	10 0 0	1.46c	810	1.33c	1,025	1.79c	164

*Middlesbrough; †Basic; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 18s 0d ($4.39) f. o. b. Ferromanganese £21 13s. 0d ($105.65) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($73.20) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

the advantage of a rebate of 10s ($2.40) per ton on beams. British foundry pig iron is £3 12s 6d ($17.55) f.o.b. Middlesbrough.

Continental markets are depressed, and the Belgians feel the effects of the considerable reduction in business that has been prevailing since the beginning of the month. In fact, the directing committee of the European steel entente held a meeting in Paris Oct. 29 and suggested that the production quota should be reduced by 10 per cent, and the next day the representatives of the Belgian industry unanimously decided to support this proposal. As soon as this became known on the market, the downward tendency of prices was stopped, and, in fact, a number of Belgian and Luxemburg works, anticipating a further hardening of prices, now are holding back quotations, and one firm has refused to quote for merchant bars.

The present period is unsatisfactory from the point of view of German exporters, and during the past week prices have fallen off considerably. Offers from India for merchant bars were as low as £4 19s ($24). German wire rod has been selling at £6 2s 6d ($29.60), although the official quotation still is £6 5s ($30.30). Beams have fallen to £4 17s ($23.50), as against £5 1s ($24.50) a week ago. Bands have dropped to £5 10s 6d ($26.90). These prices have dropped notwithstanding a fair volume of business transacted with South Wales and the Midlands, and also with Japan, for sheets.

Generally speaking, the various European producing countries seem pretty despondent for the time being, and it is probable the suggestion of the steel entente to curtail production, even though the present quarter is not yet ended, will be ratified by all members. Undoubtedly the present situation has been brought about, at least in part, by the credit stringency in Germany and by the fact that many overseas markets have been buying freely for a period of months and now are waiting in expectation of lower prices. It is hoped the curtailment of output will strengthen prices and enable producers to sell more profitably until the volume of demand again begins to increase.

French Iron Output Off

Paris, Oct. 30.—(*European Staff Service*)—Production of pig iron and steel in France during September showed a substantial drop in comparison with that of August and July. The September output included 655,000 tons of basic bessemer, 98,000 tons of phosphorus foundry, 6000 tons of phosphorus pig iron for steel-making, 17,000 tons of semiphosphorus, 24,000 tons of hematite foundry, 33,000 tons of hematite pig iron for steelmaking, and 18,000 tons of ferroalloys.

The output of steel ingots and castings in September was composed of 744,000 tons of ingots and 19,000 tons of steel castings. The tonnage was divided into 535,000 tons of basic bessemer, 209,000 tons of open hearth, 7700 tons of acid bessemer, 1300 tons of crucible and 10,000 tons of electric steel. The following table gives figures for the first nine months of 1929 as compared with the monthly averages of the three preceding years and 1913, in metric tons:

Mon. ave.	Act. Fur. on last day	Pig iron	Steel ingots and castings
1913	131	433,940	390,580
1926	155	785,965	702,500
1927	142	774,785	689,610
1928	153	841,415	782,995
1929			
Jan.	157	904,000	842,000
Feb.	157	782,000	743,000
March	156	880,000	805,000
April	158	871,000	810,000
May	157	897,000	820,000
June	155	865,000	795,000
July	156	878,000	815,000
Aug.	156	893,000	827,000
Sept.	157	857,000	763,000

British Exports Lower; Imports Gain

London, Oct. 30.—(*European Staff Service*)—Imports of pig iron and ferroalloys into Great Britain during September were the largest for the year. Of these imports most came from Belgium, 4192 tons of forge and foundry pig iron and 2024 tons of basic pig iron. Among the principal items imported were: Blooms, billets and slabs, of which 41,844 tons were imported, Belgium shipping 18,625 tons; the next highest figure was for sheet bars and tin plate bars, of which 35,002 tons were imported, 32,731 tons coming from Belgium.

Exports of pig iron, ferroalloys and other iron and steel products from Great Britain in September were the lowest for the year. Among the principal items exported were: Galvanized sheets, 46,651 tons, of which 16,385 tons went to India; tinned plates and terne plates, 42,973 tons, which were pretty equally divided between the various markets; railroad track material, 27,756 tons, of which 7597 tons went to South Africa, the largest buyer; sheets, 21,104 tons, of which 9221 tons went to Japan; merchant steel, 19,890 tons, which went principally to India and Australia; wrought iron pipe, 18,280 tons, of which the largest part amounting to 4178 tons went to Australia. The following table gives figures for the first nine months of 1929 as compared with the monthly averages of the three preceding years, in gross tons:

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron and ferroalloys	Other iron and steel	Pig iron and ferroalloys	Other iron and steel
1926	41,015	270,450	26,105	222,890
1927	50,715	316,455	27,580	322,100
1928	9,935	231,390	37,895	317,210
1929				
Jan.	13,034	231,233	49,408	371,783
Feb.	8,662	151,373	48,609	331,466
March	8,731	173,376	44,701	305,437
April	9,203	252,729	46,718	293,086
May	7,637	249,619	68,141	374,633
June	11,376	222,832	40,884	265,963
July	9,121	228,099	42,289	333,515
Aug.	9,992	245,200	45,078	313,114
Sept.	17,124	211,958	37,461	261,999

German Trade Slackens

Berlin, Oct. 31.—(*European Staff Service*)—Exports of pig iron and ferroalloys from Germany in August were slightly below the high mark reached in July. The principal items exported in August were: bars, shapes, hoops and bands, 114,672 tons; plates and sheets, 65,732 tons; semifinished products, 45,228 tons; railroad track material, 36,174 tons; wire products, 35,031 tons; forged tubes, 30,377 tons; miscellaneous forgings, 23,496 tons. The tonnage of scrap exported was 14,859.

Imports of pig iron and ferroalloys into Germany during August fell off from the July record. Among the principal items imported in August were: bars, shapes, hoops and bands, 61,704 tons, the tonnage of all other items being less than 10,000 tons. The tonnage of scrap imported in August was 46,426. Comparative figures follow, in metric tons:

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron	Other iron and steel	Pig iron	Other iron and steel
1926	9,230	95,890	42,730	402,905
1927	23,895	217,505	29,910	347,645
1928	25,535	174,250	24,585	194,575
1929				
Jan.	22,334	154,293	31,820	387,769
Feb.	10,595	101,257	20,861	320,451
March	12,394	112,161	27,090	319,172
April	12,729	141,971	35,904	583,556
May	11,495	158,787	44,275	542,840
June	12,406	164,582	36,483	485,554
July	12,798	164,951	47,784	497,784
Aug.	11,382	154,019	45,968	473,601

French Coke Is Steady

Paris, Oct. 31.—(*European Staff Service*)—The output of coke at French collieries during August was practically equal to that of July. Imports came mostly from Germany, from which country 254,358 tons were shipped, followed by Holland, 114,684 tons, Belgium, 56,045 tons, and other countries. Exports went principally to Italy, Switzerland, Belgium and Luxemburg, and Spain. Comparisons are as follows:

Mon. ave.	Production	Imports	Exports
1913	335,620	255,835	17,085
1926	313,950	462,915	39,320
1927	339,015	395,580	33,430
1928	366,660	447,330	34,810
1929			
Jan.	384,519	438,059	37,443
Feb.	360,182	400,848	34,165
March	411,328	419,478	22,941
April	394,392	503,473	34,557
May	406,170	499,824	26,312
June	394,842	494,572	37,578
July	399,207	445,441	52,499
August	398,828	428,405	37,029

Luxemburg Output Down

Luxemburg, Oct. 31.—(*European Staff Service*)—Iron and steel production in Luxemburg during September receded from the high figures reached in August, when all previous records were exceeded. Comparisons are as follows:

Mon. ave.	Furnaces on last day	Pig iron	Steel ingots and castings
1913	....	212,320	111,355
1926	40	209,295	186,980
1927	39	227,710	200,595
1928	38	230,840	214,315
1929			
Jan.	38	241,639	224,617
Feb.	38	209,207	195,388
March	38	237,039	221,370
April	38	235,077	226,098
May	38	247,863	229,620
June	38	242,020	218,634
July	38	250,260	235,241
August	38	251,496	238,210
Sept.	38	240,269	223,511

Old Blast Furnaces Fall Fast as Obsolescence Claims Them

Total Being Reduced by About Sixteen Per Year—Many Factors Combine To Cause Smaller Stacks To Be Abandoned

OBSOLESCENCE and abandonment of smaller blast furnace stacks have been under way for some time, due to a number of causes, and during the ten months of the present year no less than 17 have been dismantled or otherwise put out of commission and removed from the roll of stacks potentially or actually producing iron. This is keeping to the record of the past five years and the number put out of active service possibility the past four years has been substantially the same. In 1926 the loss was 15 stacks, and in 1927 and 1928 it was 16 each. The greatest number of stacks taken off the list in one year was 26, in 1925.

These losses leave the number of blast furnace stacks in the United States at 318 actually or potentially capable of producing pig iron. This is 120 fewer stacks than were listed in 1918, the final year of the war, when every possible smelter was in use, whether profitably or otherwise, and 438 were considered worthy of being listed. That was the high point of all times. In 1909 406 stacks were listed and the number gradually grew until 1918, when a decline set in that brought the number to 399 in June, 1925, the first time since 1908 the number had been below 400. Since 1925 the reduction has been steady.

Reasons for abandoning and dismantling these furnaces are various, but generally it is because they are old, small, and more or less isolated. It is a manifestation of one phase of constant change in the iron and steel industry, change that has been overturning established methods with startling rapidity ever since Bessemer announced his method of producing steel.

Pig iron for several years has been becoming less a major product in the merchant market and more a by-product. Recent practice has been to erect blast furnaces in connection with large by-product coke plants, to consume the coke which has been made as a by-product of gas production. The coke ovens usually have been built with regard to the market for gas and the blast furnace is not located with regard to the market for its pig iron.

Demand for open-market pig iron has dwindled markedly in recent years as steelmakers have integrated their operations and depend less on outside sources for their iron. Heavy sales of basic iron for steelmaking, once a feature of the market, seldom are made now, as ample pig iron capacity is possessed by all but a few important operators of open-hearth furnaces. This has decreased the market for the product of blast furnace stacks not connected with steel plants. It has reduced greatly the possibility of steady operation at profitable rates.

At the same time, the modern stack, refined by recent engineering research, is a much larger operating unit than the older stack and produces a heavy tonnage at a much cheaper cost per ton. This tends to render operation of the small stack unprofitable. Another factor is the tendency of steelworks companies to enter the merchant market with sufficient tonnages of surplus iron to curb sales possibilities of the isolated stack. This source of supply to melters is not sufficiently steady to take buyers entirely away from the merchant producer, but it cuts into his possible tonnage in a way that hurts his balance sheet.

Steelmakers also are feeling the changed conditions and are replacing older, smaller stacks by larger and more efficient units. In the 17 stacks abandoned or dismantled in ten months of this year, nine are owned by steelworks. This is a shade more than half, the remainder being of the merchant class.

Almost without exception the stacks put out of service were of ancient design and few had been producing iron for some time, being held in reserve for use if a sudden emergency should arise to make possible a profitable campaign, even at relatively high cost. This applies equally to steelworks and merchant stacks. This is illustrated in the case of the three stacks abandoned at Milwaukee. One was the Thomas stack, which had had a varied career for several years, a purely merchant enterprise finally forced out by competition of more modern producers. The other two were small, oldfashioned stacks at the Bayview plant of the Illinois Steel Co. Their function for some time had been to furnish gas for fuel to operate the mills, the resulting pig iron being a by-product which was sold on the merchant market. Their operation had been intermittent for some years.

Abandonment of stacks by the Ten-

(*Concluded on Page* 1292)

Stacks Abandoned During 1929

Month	Owner	No.	Name	Location
January	Tennessee Coal, Iron & Railroad Co.	1	Alice	Birmingham, Ala.
January	Tennessee Coal, Iron & Railroad Co.	2	Bessemer	Bessemer, Ala.
January	A. M. Byers Co.	1	Mattie	Girard, O.
January	Wellston Iron & Furnace Co.	2	Wellston	Wellston, O.
January	Wheeling Steel Corp.	1	Top	Wheeling, W. Va.
February	Carnegie Steel Co.	2	Bellaire	Bellaire, O.
May	Southern States Iron & Coal Corp.	1	Chattanooga	Chattanooga, Tenn.
September	Bethlehem Steel Co.	1	Coatesville	Coatesville, Pa.
September	Graham Furnace Corp.	1	Graham	Bluefield, Va.
October	Goshen Furnace Corp.	1	Victoria	Goshen, Va.
October	Illinois Steel Co.	2	Bay View	Milwaukee, Wis.
October	Milwaukee Blast Furnace Co.	1	Thomas	Milwaukee, Wis.
October	Napier Iron Works Co.	1	Napier	Napier, Tenn.

Machinery

Pending Business of Sufficient Volume to Keep Builders Busy the Balance of the Year—Inquiries Small but Encouraging

ENCOURAGING reports are received from various machine tool centers, and although a more careful tendency in buying is noted still many lines are unable to keep up with demand. Sales for the past week compare favorably with those of the same period last year; pending business is heavy, promising fair activity for the balance of the year. Buying continues to be for one or two units, large lists being noticeably scarce. General Electric Co. has placed the major part of its business for the year and probably will be out of the market for a while. Curtailment of operations by radio manufacturers will not have much effect on the market, it is thought. Builders of small office equipment are moving a large volume of their product.

New York, Nov. 12.—Some improvement is noted on delivery for standard machines, although boring machines still are delayed for months. Lathes, drills, millers, planers and presses, however, are shipped in slightly better time.

Dealers and builders differ as to activities this week. Some report inquiry and orders are at the same high rate of October. Others say orders dropped off slightly, but all agree that pending business continues heavy.

Buying is largely confined to one and two units. No large lists are appearing and a good part of the business with some builders now appears to be for replacement. Grinding machinery is moving briskly, but shops close to the automotive industry lack orders from that source. Business from other industries has made up the gap, however, especially from the airplane engine builders.

It is reported General Electric Co. has placed the bulk of its business for the year and that orders from that buyer during the remainder of the quarter will be limited. New York Central railroad is inquiring for a few machines, but as a rule eastern railroads are not active in the market. Machine shop business holds up well and bearing makers are generally active. Used tools are also active. Builders of small office equipment report a tremendous sale of such equipment.

Worcester, Mass., Nov. 12.—While in some quarters there has been noted a tendency toward more careful buying, other lines in the machinery market continue to report inability to keep abreast of demand. Buyers of grinders continue to ask quicker delivery on machines which have been out of stock for months and lathes and drills are reported to be "not even tapering off." Deliveries are still several weeks delayed, with stocks completely exhausted. Some automotive business has come into the market during the week. Small tools are moving well. New York, New Haven & Hartford railroad here has installed a 30-ton electric crane to handle heavy machinery in process of shipment.

Pittsburgh, Nov. 12.—Large individual lots are lacking in machine tool awards and new inquiry, but the volume of pending business gives indications of providing the remainder of the year with fair activity. Current sales compare favorably with those of a year ago despite some falling off from earlier months of this year. Closing is deferred on several lists, but no important business has been abandoned. Equipment remains to be placed for Westinghouse Electric & Mfg. Co., Republic Iron & Steel Co., Bethlehem Steel Co. and Aluminum Co. of America. Local builders of heavy steel mill machinery are well engaged with order books generally heavier than a year ago. Pending crane business continues large, although closing is slow.

Chicago, Nov. 12.—Machine tool business is holding its own in this territory, but no definite pick-up has developed since the decline in sales about the middle of last month. Inquiries are slightly more active. A southwestern Michigan manufacturer has issued inquiry for about a dozen items; a number of metalworking concerns in the immediate Chicago district are in the market. Curtailment of operations by some of the radio manufacturers will have little effect, as their contemplated purchases involve chiefly small drills and presses. Chicago, Burlington & Quincy railroad will purchase a portable radial drill. and Chicago Rock Island & Pacific is in the market for some woodworking tools. It is pointed out that much of the buying this year western markets has been for replacement, although early in the year implement and tractor orders led in new expansion work. Some of the machine tool builders still are working on orders booked during the spring and summer rush seasons, but it is indicated that much of the tightness in the delivery positions of builders will be relieved materially in about a month.

Cleveland, Nov. 12.—A healthy condition prevails in machinery markets in this territory, inquiry being steady although mostly for small amounts. Sales are slightly better than at this time in 1928. One dealer characterizes conditions as seasonable. Western Electric Co. is taking some machinery as are other electrical interests. Automotive inquiry remains quiet; no one seems willing to venture an opinion as to when any business from this source will be forthcoming. A rumor is afloat that the Van Sweringen interests are bringing to Cleveland within 60 days an industry that will employ upward of 10,000 workers. No further details are available.

Old Blast Furnaces Are Falling Fast

(*Concluded from Page* 1291)

nessee Coal, Iron & Railroad Co., Wheeling Steel Corp., Carnegie Steel Co., Bethlehem Steel Co. and Illinois Steel Co. was dictated in every case by high cost and small production of obsolete equipment.

Merchant stacks similarly abandoned came to their end as the result of unprofitable conditions, location, high cost or inability to meet competition. In some cases changes in freight rates were a factor, by giving less favorable rates for moving iron to consuming points. This has had considerable effect on the success of single furnaces originally located under different freight rate considerations.

Lessened number of blast furnace stacks has not handicapped total production of pig iron, as annual figures show present output is on a par with the wartime years of 1916-18, while the number of stacks is 27 per cent less. Larger unit production from the newer plants is responsible for this. Greater tonnage is possible from each stack at smaller overhead.

This is the answer to the situation which is casting the smaller and older stacks into the discard.

Completing Algoma Mills

Sault Ste. Marie, Ont., Nov. 12.—It is expected that the new 18-inch merchant mill under construction here by the Algoma Steel Corp. will be ready to operate by Dec. 15, according to J. D. Jones, vice-president. The new 12-inch mill will be ready about Jan. 1, under present plans.

Devlieg Machine Tool Co., Jackson, Mich., has increased capital stock from 1351 to 2500 shares no par.

CONSTRUCTION *and* ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

HARTFORD, CONN.—Abbott Mills, Brainerd field, Hartford, plans construction of a 1-story hangar and office building, including a machine shop, 100 x 120 feet, for an aeronautical company here. Estimated cost about $50,000.

WATERBURY, CONN.—Scovill Mfg. Co., manufacturer of brass goods, awarded a contract for a 1-story plant addition estimated to cost about $85,000 with equipment.

BALTIMORE—W. A. Fingles Inc., 29 South Howard street, sheet metal worker, awarded general contract for a 2-story plant building to M. A. Long Co., 10 West Chase street. Estimated cost about $60,000. (Noted Aug. 15.)

HAGERSTOWN, MD.—Victor Cooler Door Co., manufacturer of cold storage doors, awarded a contract for a 1-story plant addition to J. B. Ferguson Co., 39 West Washington street. Estimated cost about $125,000.

BOSTON—New England Baptist hospital, 83 Parker Hill avenue, awarded a contract for a boiler room and service building to H. W. Burke, Milton, Mass.

MALDEN, MASS.—F. Spring, 980 Main street, awarded a contract for the construction of a 1-story auto show room and repair shop, 100 x 100 feet.

SALEM, MASS.—Essex institute, 132 Essex street, care H. W. Belknap, has plans for the construction of a boiler house estimated to cost about $100,000.

SPRINGFIELD, MASS.—Moore Drop Forging Co., Birnie street, has awarded a contract for the construction of a 1-story plant addition estimated to cost about $45,000.

WORCESTER, MASS.—Boston & Maine railroad, Lechmere square, East Cambridge, Mass., has been issued a permit for the construction of a cooling plant here for locomotives to cost about $60,000.

WARREN, N. H.—New Hampshire Sanatorium, R. W. Deming superintendent, awarded a contract for a 1-story hydroelectric station to the Robie Construction Co., 999 Elm street, Manchester, N. H. Estimated cost about $40,000.

BLOOMFIELD, N. J.—Eastern Tool & Mfg. Co. contemplates the construction of a plant building. Architect not selected.

HACKENSACK, N. J.—C. V. R. Bogert, architect, 210 Main street, will take bids about Nov. 15 for a 1-story and basement workshop and warehouse for the Hackensack Water Co.

Harrison, N. J.—Driver Harris Co., Middlesex street, manufacturer of wire, has plans for a group of plant buildings including a 1-story power house. J. A. Finegan, 776 Broad street, Newark, N. J., is architect.

BROOKLYN, N. Y.—E. M. Edelshon, 26 Court street, prepared plans for two 1-story foundry additions to the Keystone Foundry Co., Essex street and Wortman avenue.

HORNELL, N. Y.—Erie railroad, care R. C. Falconer, chief engineer, 50 Church street, New York, has plans for an addition, 150 x 150 feet, to its locomotive shops here.

ITHACA, N. Y.—Cornell University has appropriated $180,000 for a heating plant addition.

LONG ISLAND CITY, N. Y.—T. Steele, 482 Vernon boulevard, has plans for a machine shop at Vernon boulevard and Rogers street. VanWert & Wein, 347 Madison avenue, New York, are architects.

NEW YORK—Department of parks, Arsenal building, Central park, has rejected bids for a power house and service building for the American Museum of Natural History. Bids will be readvertised.

BRADFORD, PA.—S. R. Dresser Mfg. Co., manufacturer of pipe couplings, etc., awarded a contract for a plant addition, 25 x 180 feet, which will be equipped with new machinery.

GRASSMERE, PA.—Acme Steel Co., manufacturer of electric steel castings, advises it is making two additions to its foundry, one, 80 x 200 feet, the other, 40 x 80 feet. Core ovens, an annealing oven, crane, air compressor and other auxiliary equipment will be installed.

GREENVILLE, PA.—Thiel college, care Dr. E. Clyde Xander, president, contemplates a central heating plant. Maturity is indefinite and engineer not selected.

LEBANON, PA.—Lebanon Steel Foundry Co. awarded a contract for a 1-story foundry addition, 183 x 260 feet, to Hughes Foulkrod Co., Philadelphia. (Noted Oct. 24.)

PHILADELPHIA—Wicaco Screw & Machine Co., 4801 Stenton avenue, has been issued a permit for the construction of a plant addition to cost about $19,000.

PHILADELPHIA—Gimbel Bros., Ninth and Market streets, have plans for a 2-story garage and service building. Abbott, Merkt & Co., 175 Fifth avenue, New York, is architect and engineer.

PHILADELPHIA—C. W. Maslin, architect, 428 Roxborough avenue, will take bids early in the spring on general contract for a 1-story sales and service building for the Schofield Motor Co., 5460 Ridge avenue.

POLK, PA.—Polk state school, J. Smiley, secretary, is taking bids until Nov. 15 on the general contract for power plant improvements estimated to cost about $70,000. J. N. Chester, Clark building, Pittsburgh, is engineer.

PROVIDENCE, R. I.—Providence Insulated Wire Co. will soon start construction of a 1-story plant and office building.

PROVIDENCE, R. I.—Melowitz & Gorden, 109 Pearl street, awarded a contract for the construction of a 1-story garage and repair shop, 60 x 190 feet. Estimated cost about $60,000.

Southern States

COLUMBUS, GA.—Lummus Cotton Gin Co., manufacturer of ginning machinery, awarded a contract to W. C. Whitaker, 1121 First avenue for plant alterations.

ALEXANDRIA, LA.—City has started work on 225-acre airport and will soon call for bids for steel hangars and other equipment.

WIGGINS, MISS.—City will soon award a contract for the construction of water works improvements including deep well pump. Shaw & Woleben, Gulfport, Miss., are engineers.

CHATTANOOGA, TENN.—Farmer & Co., recently incorporated, is seeking to lease or buy a small plant here in which to establish a forge shop for the manufacture of steel plates for railroad crossings. Lovell J. Morris, Volunteer building, is interested in the company. (Noted May 23.)

AUSTIN, TEX.—City plans spending about $87,000 to be used for developing municipal

airport which will be leased to Southern Air Transport Inc., National Bank building, Fort Worth, Tex. A hangar, administration and work shop buildings are included in the plans.

HOUSTON, TEX.—Ford Motor Co., 3906 Harrisburg boulevard, will build an addition to its assembly plant here, 35 x 75 feet.

COVINGTON, VA.—Virginia Public Service Co., Charlottesville, Va., had surveys made for a proposed hydroelectric plant here.

PULASKI, VA. — Atlantic Gas Co., Bullitt building, Philadelphia, which has been granted franchises here, Dublin and Radford, Va., will soon start construction of a gas plant and distributing system. Location of plant undetermined.

ST. CHARLES, VA.—Benedict Coal Co., Sixth and Laurel streets, Knoxville, Tenn., Guy Darst president, has plans for rebuilding conveyor, tipple and head house here recently damaged by fire.

SUFFOLK, VA.—Motor-Car Ventilator Corp., manufacturer of vacuum ventilating devices, advises through John K. Beeber, district sales manager, it will build a foundry for making brass and aluminum castings. The first unit will be 60 x 70 feet. The company is in the market for all necessary equipment. (Noted Oct. 24.)

West Central

SHOPTON, IOWA—Atchison, Topeka & Santa Fe railroad, 80 East Jackson boulevard, Chicago, awarded a contract for an enginehouse addition which will include shop facilities to W. A. Smith & Son, Fort Madison, Iowa.

ST. PAUL—Northern Malleable Iron Co., Wells and Forest streets, has awarded a construction contract for a 1-story plant addition.

ST. LOUIS—J. J. O'Brien Machinery Co., 1623 North Broadway, has leased adjoining property at 1621 North Broadway for office and warehouse purposes.

ST. LOUIS—Master Tool & Machine Co., 1609 North Broadway, has acquired adjoining property for expansion purposes, including the manufacture of automotive repair tools. L. R. Klinger is manager.

LINCOLN, NEBR.—Iowa Nebraska Power & Light Co., Ninth and L streets, contemplates building a power plant including a boiler room, turbine room, etc.

Western States

LOS ANGELES—Western Pipe & Steel Co., 5717 Santa Fe avenue, has plans for the construction of a 1-story plant addition, 130 x 345 feet.

LOS ANGELES—Universal Engineering Co., 2369 East Fifty-first street, has plans for a 2-story plant addition, 62 x 92 feet, which will be used for the manufacture of oil well drills. Estimated to cost about $30,000.

MODESTO, CALIF.—Aircraft Industries Ltd., 935 East Fourteenth street, Oakland, Calif., awarded a contract for a plant here estimated to cost about $60,000.

PITTSBURG, CALIF.—Mineral Increments Co., Los Angeles, will soon start construction of a plant for the manufacture of ceryllium, a steel manufactured by a German process. Joseph R. McInerny is president. Estimated cost about $250,000.

SAN FRANCISCO—Pacific Foundry Co., Eighteenth and Harrison streets, is said to have plans for the construction of a foundry addition.

SAN FRANCISCO—Pacific Gas & Electric Co., 445 Sutter street, awarded a contract for a group of service buildings estimated to cost about $300,000 to Monson Bros., 475 Sixth street.

SAN FRANCISCO—Heintz & Kaufman Inc., 219 Natoma street, awarded a contract for a radio equipment manufacturing plant to Barrett & Hilp, 918 Harrison street. (Noted Oct. 10.)

ABERDEEN, WASH.—Richfield Oil Co. plans to erect storage and distributing facilities here, according to J. H. Quinlan, local distribution manager.

CONROY, WYO.—Wyoming Carbonizing & Briquetting Corp., care C. Peter, Newhouse building, Salt Lake City, Utah, has plans for the construction of a carbonizing and briquetting plant with a 1000-ton capacity. K. A. Loven, Buckingham hotel, Minneapolis, is engineer.

Canada

NEW WESTMINSTER, B. C.—Westminster Paper Co. Ltd., whose plant was damaged by fire last July, announces that the first unit costing $800,000 will be built at once to replace the former plant. The initial unit will consist of a 2-story machine room, 100 x 230 feet and a 3-story finishing building, 100 x 160 feet, of fireproof construction.

VANCOUVER, B. C.—Powell River Co. Ltd., Vancouver, has started to receive bids and will be awarding contracts well into December in connection with its proposed $6,00,000 expansion and power development at Lois river, 14 miles from Powel river town, according to A. E. McMaster, general manager. The proposed power plant will develop 18,000 horsepower.

HAMILTON, ONT.—Coffield Washer Co. of Canada Ltd., manufacturer of electric washing machines, is having plans prepared for the construction of a 1-story plant addition.

SMITH'S FALLS, ONT.—Smelting & Refining Co. Ltd. has awarded contract to D. Dignan, Russell street, for alterations and improvements to plant here.

East Central

CHICAGO—Spanjer Bros., 1160 Chatham court, manufacturer of signs, awarded a contract for the construction of a 3-story building, 25 x 149 feet.

CHICAGO—Directors of American Steel Foundries, 410 North Michigan avenue, have approved substantial expenditures for plant improvements and additions.

CHICAGO—Grigsby Grunow Co., 5801 Dickens avenue, manufacturer of radios, has been issued a permit for the construction of a 2-story plant addition, 80 x 674 feet. Holabird & Root, 333 North Michigan avenue, are architects. Estimated cost about $800,000.

CHICAGO—W. J. Korber & Co., 261 North California avenue, ornamental iron works, have

awarded a contract for a 2-story machine shop addition, 52 x 127 feet.

CHICAGO—Kling Bros. Engineering Works, 1300 North Kostner avenue, has awarded a contract for the construction of a 2-story plant building, 49 x 60 feet. Possibly for machine shop purposes.

CHICAGO—Western Electric Co., Forty-eighth avenue and West Twenty-second street, has leased a building at Forty-third street and Damen avenue, for additional warehousing space and assembling of parts for sound-reproducing machines.

EAST MOLINE, ILL.—Yellow Sleeve-Valve Engine Works Inc., a subsidiary of General Motors Corp., Detroit, will move to Pontiac, Mich., according to Paul W. Seiler, president of General Motors Truck Corp., Pontiac. The engine works will locate in a plant building on Rapid street, largely unoccupied for the past two years.

PRINCETON, ILL.—Bureau county, care board of supervisors, is having plans prepared for a 1-story machinery building and repair shop. Estimated cost about $25,000.

VANDALIA, ILL.—Southeastern Illinois Gas Co., Marion, Ill., contemplates the construction of a gas plant here.

CONNERSVILLE, IND.—Corman Aircraft Corp. of Indiana, a subsidiary of the Cord Corp., Auburn, Ind., has plans for an airplane plant here to be completed by Feb. 1, according to Ellis W. Ryan, resident director. The company will manufacture tri-motor transport planes.

EVANSVILLE, IND.—A. L. Maxwell Co. awarded a contract for the construction of a garage and repair shop at Ninth and Locust streets.

JASPER, IND.—Hoosier Desk Co. has awarded a contract for a power house to C. Keller, 818 Dubois street, Vincennes, Ind.

BAY CITY, MICH.—Gibb Welding Machines Co., Trumbull and North Water streets, has optioned a 3½-acre tract in connection with a proposed expansion program, it was announced by W. H. Gibb, president.

DETROIT—Kelsey Wheel Co. Inc., 3600 Military street, has plans for plant alterations. Albert Kahn, Marquette building, is architect.

DETROIT—Eureka Vacuum Cleaner Co., Dewey and Hamilton avenues, has awarded a contract for a plant addition to W. C. Pocock & Co., 1726 Seward avenue.

DETROIT—McCord Radiator Mfg. Co., 2587 East Grand boulevard, is having plans prepared for a plant addition by Smith, Hinchman & Grylls, Marquette building.

DETROIT—Detroit Die Casting Co., C. H. Davis president, 442 East Jefferson avenue, started to take bids about Nov. 5 for the construction of a one and 2-story plant and office building to cost about $75,000.

DETROIT—Drying & Conveying Equipment Co., 4-152 General Motors building, recently incorporated to manufacture industrial ovens, conveyors, etc., advises it has purchased the plant of the Weigel-Brown Iron Works Inc., 17333 Healy avenue, Detroit, and is making plant improvements. Equipment will also be added. (Noted Nov. 7.)

KALAMAZOO, MICH.—Checker Cab Mfg. Co. has awarded a contract for a plant addition to Ralph Sollitt & Son, South Bend, Ind. (Noted Aug. 15.)

MONROE, MICH.—Monroe Auto Equipment Co. has plans for an extensive expansion program which will increase capacity about 50 per cent during the coming year.

MONROE, MICH.—Monroe Steel Castings Co. awarded a contract for a 1-story foundry addition to the Wisconsin Bridge & Iron Co., Penobscot building, Detroit. Estimated cost about $75,000.

MUSKEGON, MICH.—American Enameled Wire Co., Water street, contemplates the construction of a plant addition.

MUSKEGON, MICH.—Fire recently damaged the plant of the Lakey Foundry & Machine Co. Loss may reach $50,000.

MUSKEGON, MICH.—Mercy hospital, 1521 Jefferson avenue, has plans for a 2-story nurses' home and power plant estimated to cost about $400,000. F. Forster, 240 Lyman building, is architect.

PONTIAC, MICH.—American Forging & Socket Co., manufacturer of drop forgings and stampings, advises through W. S. Saunders, president, it has outgrown present facilities and plans construction of a new and larger plant. Location has not been determined.

CHARDON, O.—Euclid Crane & Hoist Co. has awarded a contract for the construction of a plant addition, 47 x 213 feet.

CLEVELAND—Peerless Motor Car Co., East Ninety-third street and Quincy avenue, awarded a contract for a sales and service building to the Sam W. Emerson Co., 1836 Euclid avenue.

CLEVELAND—Willard Storage Battery Co., 264 East 131st street, care P. N. Voth, awarded the general contract for a 1-story acetylene plant, 23 x 40 feet, to the Albert M. Higley Co., Plymouth building.

CLEVELAND—Nickel Plate Development Co., care A. C. Harvey, chief engineer, Terminal Tower building, awarded the general contract for a car repair building at East Fifty-fifth street and Grand avenue to the Super-Bilt Construction Co., 1836 Euclid avenue.

COLUMBUS, O.—Miller Foundry Co., 730 Sheldon avenue, has awarded a contract for an addition which will add 6000 square feet to its plant, according to Edward Miller, president and general manager.

NORTH BALTIMORE, O.—Leonard L. Burget and Steve Toth, Toledo, O., have leased the Paul Foundry plant here for a five year period, for manufacturing purposes. W. H. McMillen, attorney, North Baltimore, handled the transaction.

TIFFIN, O.—Sterling Grinding Wheel Co., which has construction underway of an addition, 122 x 145 feet, will construct a similar building upon completion of the first. George S. Rider Co., Century building, Cleveland, is architect. (Noted Sept. 19.)

ELROY, WIS.—John Weger has engaged Fred L. Kronenberg, architect, Madison, Wis., to prepare plans for an automobile service plant costing about $65,000, consisting of a 1-story and part basement garage, 60 x 75 x 80 feet. Bids will be taken about the middle of November.

HARTFORD, WIS.—Central Chevrolet agency has broken ground for a new 2-story garage and service building, 74 x 118 feet, at East Sumner and Mill streets.

MADISON, WIS.—Royal Airways Corp., 614 East Gorham street, is building a fireproof hangar with complete machine and service shop, 100 x 135 feet, at the Madison airport. The architects are Flad & Moulton, Madison. E. N. Quinn is president of the air line. (Noted Sept. 12.)

MILWAUKEE—J. C. Busch Co., 136 Ferry street, general machinist, is building a shop addition, 31 x 62 feet.

MILWAUKEE—Work has been started by the Filer & Stowell Co. on the erection of a 1-story plant addition, 53 x 107 feet, at 219 Becher street.

MILWAUKEE—Work has been started by the Pressed Steel Tank Co. on a 1-story plant addition, 54 x 100 feet, at 5701 Greenfield avenue, in West Allis, a suburb of Milwaukee.

MILWAUKEE—Milwaukee Grey Iron Foundry Co., Thirty-ninth avenue and Mitchell street, is building a 1-story cleaning room addition, 35 x 130 feet, and a core oven building, 26 x 40 feet. Two single-rack core ovens will be provided.

MONDOVI, WIS.—Fisher Auto Co. has plans by Architect Edward J. Hancock, Drummond block, Eau Claire, Wis., for a 1-story addition, 88 x 110 feet, to its automotive building to cost about $30,000.

RACINE, WIS.—Wisconsin Cylinder Co., 1308 Eighteenth street, specializing in automobile cylinder castings, has awarded contracts for the erection of two shop additions, 40 x 70 and 28 x 60 feet.

VIROQUA, WIS.—Southwestern Wisconsin Gas Co., 112 West Washington avenue, Madison, Wis., has been granted a franchise to build and operate a gas producer and distribution plant here, with the stipulation that it must be in working order within a year. J. S. Hartt, Madison, is one of the principals.

WAUSAU, WIS.—Wausau Iron Works, structural steel fabricator and also maintaining a large machine shop, is building a brick and steel plant addition, 100 x 148 feet, at 738 South Tenth avenue.

Recent Incorporations

CHICAGO—Oil Drilling Corp. has been incorporated with 10,000 shares of no par stock to produce and refine petroleum, through Huff & Cook, the corporation's attorney, 29 South LaSalle street.

CRAWFORDSVILLE, IND.—Apex Stamping Co. has been incorporated with $150,000 capital to manufacture machinery and appliances of all kinds. The first board of directors is composed

of James L. Rubel, R. P. Smith and H. L. Kisker.

INDIANAPOLIS—Automotive Mfg. Co. Inc. has been incorporated with 1000 shares of no par stock to manufacture and deal in all parts of automobiles, airplanes and motor boats. Jean Marks, 3620 North Meridian street, is a director.

MARION, IND.—Superior Body Corp. has been incorporated with 1500 shares of no par stock to manufacture and sell truck bodies and parts. John B. Sisson, 2514 South Boots street, is one of the incorporators.

BOSTON—American Knitting Machinery Co. has been incorporated with 10,000 shares of no par stock to manufacture and deal in knitting machinery. Arthur L. Hobson Jr., 1 Federal street, Boston, is president.

EVERETT, MASS.—Duplex Motors Inc., 1934 River Beach parkway, has been incorporated with 12,000 shares of no par stock to manufacture airplanes, motors and accessories. Andrew J. Lloyd, 19 Congress street, Boston, is president.

SOMERVILLE, MASS.—State Burner Corp. has been incorporated with 900 shares of no par stock to manufacture and export all kinds of mechanical devices, electrical machines and accessories. Edward C. Boyington, 130 Winthrop street, Medford, Mass., is president.

SOMERVILLE, MASS.—Automatic Vendors Inc., 106 Marshall street, has been incorporated with $100,000 preferred and 10,000 shares of common stock to manufacture and deal in all kinds of vending machines. Percival B. Waters is president.

SOUTH BOSTON, MASS.—Metal-Craft Screen Mfg. Corp., 75 West Broadway, has been incorporated with $50,000 capital to manufacture metal screens, frames and metal products. David L. Shoolman is treasurer.

SPRINGFIELD, MASS.—Mutual Radio Co., 31 Elm street, has been incorporated with $100,000 preferred and 20,000 shares of no par common stock to manufacture all kinds of radios, equipment and electrical appliances. Merwyn Samuels is president.

TAUNTON, MASS.—Alfred Cutler Morse Inc. has been incorporated with $60,000 capital to manufacture motor boats, aircraft, engines, radios, etc. Alfred Cutler Morse, 79 Church green, is president and treasurer.

WALPOLE, MASS.—Frank M. Hill Machine Co. has been incorporated with $30,000 capital to build machines, manufacture compressors, engage in business of tool making, etc. Frank M. Hill, Walpole, is treasurer.

DETROIT—Allied Die Cast Co. of America, 7420 Melville avenue, has been incorporated with $100,000 capital to manufacture and sell machinery products and automobiles, by Clifford Sorenson.

MUSKEGON HEIGHTS, MICH.—Industrial Pattern & Engineering Co. has been incorporated with $50,000 capital to engage in general engineering and contracting, by Edwin H. L. Englund, 924 Moffett street.

NORTH PLAINFIELD, N. J.—Frank Mobus Inc. has been incorporated with $100,000 capital to engage in business as a road contractor, by Codington, Blatz & Smalley, Plainfield.

BROOKLYN, N. Y.—Lakner & Halpern Construction Corp. has been incorporated with $20,000 to engage in the contracting business, by H. G. Rediker, 26 Court street.

CLEVELAND—Accuro Metal Products Corp. has been incorporated with 3000 shares of no par stock, through Grossman & McAfee, attorneys, East Ohio Gas building, Cleveland.

CLEVELAND—Electric Domestic Stoker Corp. has been incorporated with 250 shares of no par stock, by K. W. Kitchen, 708 Guarantee Title building.

TORONTO, ONT.—Temple Radio Ltd. has been incorporated to manufacture and deal in radio receiving sets, loud speakers, machines, etc. with $200,000 capital, by Wilfred C. James, Graham T. Evans and Warwick H. Noble, all of Toronto.

WINDSOR, ONT.—A. C. F. Motor Co. of Canada Ltd. has been incorporated to manufacture and deal in automobiles, motors and trucks with 500 shares of no par stock, by William F. McDermott, West New Brighton, N. Y., John L. Farrell, Belle Harbor, Long Island, N. Y., and Edward J. Crowe, Brooklyn, N. Y.

SASKATOON, SASK.—National Airways Ltd. has been incorporated to manufacture and deal in airships and aeroplanes with 100,000 shares of no par stock, by Earnest F. H. Davis, Silvarious P. Rooney and Thomas Miller, all of Saskatoon.

New Trade Publications

FIRE PROTECTION—American-LaFrance & Foamite Corp., Elmira, N. Y., covers the subject of airport fires and protection in a 16-page booklet. Airport fires are used as illustrations.

LIFT TRUCKS—Lewis-Shepard Co., Boston, in a current bulletin features its foot lift truck for easy and rapid handling of materials. A table of specifications points to the proper truck for various uses.

GRINDERS—Chicago Pneumatic Tool Co., 6 East Forty-fourth street, New York, has issued a folder on its new type rotary, air powered, light weight, portable grinder. Sectional views are shown.

SHAPERS—Cincinnati Shaper Co., Cincinnati, is ready to mail its new catalog, covering its line of shapers. The first half illustrates typical models and sizes from its line of 22 shapers. The second section is devoted to a treatise on shaper design.

FLOOR GRATING—Blaw-Knox Co., Pittsburgh, is distributing a broadside featuring its forged floor grating for safe footing and ventilation of lower levels. Actual installations are illustrated and a table of safe loads is given.

LUBRICATION—Texas Co., New York, discusses lubrication in the presence of water in a current issue of its publication devoted to lubrication. It is illustrated to show methods in use in various places where problems are presented.

TRAMRAIL—Cleveland Electric Tramrail division of Cleveland Crane & Engineering Co., Wickliffe, O., in a current bulletin shows economies of tramrail for handling rolls of all kinds in industrial establishments. Illustrations show application to a variety of uses.

PUMPS—Chicago Pump Co., Chicago, has issued a catalog of its products, 200 pages, describing its pumps, their application, engineering tables, specifications and a special section of useful information. It supplies much information pertaining to modern buildings and pumping equipment used therein.

CHAIN GRATE STOKERS—Green natural draft chain grate stokers are illustrated and described in a catalog issued by the Combustion Engineering Corp., New York. An interesting feature is a table showing three typical evaporative tests. Drawings show application of the stoker to various types of boilers.

CENTRIFUGAL PUMPS—Duriron Co. Inc., Dayton, O., describes in a current bulletin two types of its centrifugal pumps, designed for use where materials to be pumped are corrosive and destructive to ordinary materials. It is illustrated and charts show ratings of various models.

GEARS—Westinghouse Electric & Mfg. Co., Pittsburgh, has prepared a bulletin on its heat treated and hardened gears. It gives facts about these gears and their uses and contains a tabulation of physical properties of numerous kinds of gears and curves showing relative hardness of gear teeth at various depths.

ISOLATION—Korfund Co. Inc., New York, has issued the first of a regular publication on scientific, practical and economical application and study of materials and methods of deadening and eliminating vibration and noise. It will be published quarterly for all who are interested in this subject.

PRESS BRAKES—Cincinnati Shaper Co., Cincinnati, presents in its current catalog on press brakes much information on various types of work possible to accomplish on this type of machine. The catalog illustrates the company's line of brakes, with ample illustrations in halftone and line drawings.

CONVEYORS—Saginaw Stamping & Tool Co., Saginaw, Mich., has published a 42-page bulletin on its conveyor equipment. The booklet is illustrated with detail and assembly views of the various types of conveyors, with drawings and reproductions from photographs of typical installations. Tables of dimensions and list prices are included.

ELECTRIC CONTROLLERS—Allen-Bradley Co., Milwaukee, manufacturer of electric controlling devices, has prepared a loose-leaf catalog of its products. A chapter is devoted to the organization behind its products, the plant in which they are made and the field organization through which they are distributed. The catalog is well indexed and copiously illustrated.

DIE-MAKING SUPPLIES—Danly Machine Specialties Inc., Chicago, has published the sixth edition of its catalog and data book on die sets and diemakers' supplies. It has been completely revised to include the complete line of reverse die sets and additional sizes of laps, stripper bolts and bushings. A new type of shoulder, guide post and bushing has been included. A chart shows what sizes and makes of punch presses can be employed for various sizes of die sets.

PHILADELPHIA DISTRICT STEEL SERVICE

Mr. Thomas J. Moore, Manager, and his Ward-house staff have provided a steel service that is outstanding in the Philadelphia district.

EDGAR T. WARD'S SONS CO.

(Division of COLUMBIA STEEL & SHAFTING CO.)

PHILADELPHIA WARD-HOUSE—Cedar and Westmoreland Streets

BOSTON, 44 Farnsworth St.
BUFFALO, 39 River St.
CHICAGO, 1455 W. 37th St.
CLEVELAND, 1210 E. 55th St.
DETROIT, 1300 Fort St., West
MILWAUKEE, 57 Ave. and Burnham St.
NEWARK, 400 Frelinghuysen Ave.
NEW YORK, 373 Pearl St.

The World's Largest Distributors of Fine Steel Products

Pipe and Tube Prices—Plate Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

To large jobbers these discounts are increased by 1 point and supplementary discounts of 5 and 2½ per cent on black, and 1½ points and supplementary discounts of 5 and 2½ per cent on galvanized.

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

	Black.	Galv.
⅛ and ¼-inch	+11	+36
⅜-inch	23	5
½-inch	28	11
¾-inch	31	15
1 and 1¼-inch	35	18
1½ and 2-inch	35	18

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	9
2½ to 3½-inch	28	12
4 to 6-inch	30	17
7 and 8-inch	29	16
9 to 12-inch	26	11

REAMED AND DRIFTED

2-inch to 6-inch—Two points less than above

EXTRA STRONG, PLAIN ENDS

⅛ and ¼-inch	+13	+48
⅜-inch	23	7
½-inch	28	12
1 to 2-inch	34	18

Lap Weld

2-inch	29	13
2½ to 4-inch	34	20
4½ to 6-inch	33	19
7 and 8-inch	31	17
9 to 12-inch	21	8

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

Jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized wrought iron pipe.

On extra or double extra strong pipe fitted with threads and couplings basing discount lowered 5 points from plain end price. Fitted with threads only, basing discount lowered 3 points for random lengths.

Boiler Tubes

Pittsburgh carload discounts

STEEL (Lap Weld)

2 and 2¼-inch	38 off
2½ and 2¾-inch	46 off
3-inch	52 off
3¼ to 3¾-inch	54 off
4-inch	57 off
4½ to 6-inch	46 off

Subject to two 5 per cent discounts on full carload shipments. On less than 10,000 pounds, base discount reduced 6 points and one 5 per cent allowed. Over 10,000 pounds to carload, base discount reduced 4 points and two 5 per cents allowed.

CHARCOAL IRON

1½-inch	1 off
1¾-inch	8 off
2 and 2¼-inch	13 off
2½ and 2¾-inch	16 off
3-inch	17 off
3¼ to 3½-inch	18 off
4-inch	20 off
4½-inch	21 off

Subject to 10 per cent discount on full carload lots. On less than 10,000 pounds, base discount reduced 2 points and no preferential allowed. On 10,000 pounds to carload, 5 per cent preferential allowed.

SEAMLESS COLD DRAWN

1-inch	61 off
1¼ and 1½-inch	53 off
1¾-inch	37 off
2 and 2¼-inch	32 off
2½ and 2¾-inch	40 off
3-inch	46 off
3¼ and 3½-inch	48 off
4-inch	51 off
4½, 5 and 6-inch	40 off

SEAMLESS HOT ROLLED

1¾-inch	37 off
2 and 2¼-inch	38 off
2½ and 2¾-inch	46 off
3-inch	52 off
3¼ and 3½-inch	54 off
4-inch	57 off
4½, 5 and 6-inch	46 off

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed.

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off

Carbon 0.30 to 0.40 per cent.....45 to 50 off

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for lengths over 24 feet.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, date Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weight.

Over 100 to and including 110 inches	.05c
Over 110 to and including 115 inches	.10c
Over 115 to and including 120 inches	.15c
Over 120 to and including 125 inches	.25c
Over 125 to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 to and including 84 inches	.10c
Over 84 to and including 96 inches	.20c
Over 96 to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{16}$-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds square foot	.20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{16}$-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds square foot	.20c
Plates ordered 7.65 pounds square foot	.30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. navy department or equivalent specifications	1.00c
Boiler steel subject to U. S. navy department specifications, classes A-B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates	1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra	.10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra	.20c